Sir ROBERT HEILIG LIBRARY
S. M. S. Medical College,
Jaipur
Acc. No. 33328
Date 4/9/08
Price

ADDRESSES AND ORIGINAL ARTICLES

THE PRIMARY HISTOLOGICAL LESION OF REGIONAL ILEITIS

By GEOFFREY HADFIELD, M D Lond, F R C P
PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF LONDON
PATHOLOGIST TO ST BARTHOLOMEW'S HOSPITAL

THE object of this paper is to summarise the histological changes found in the terminal ileum and its related lymph nodes in 20 cases of regional ileitis It has been possible to classify this material according to the evolution of the pathological process in the bowel, and it is claimed, on this basis that the primary histological lesion can be defined The average age of onset duration, and symptoms in this series were substantially the same as those described by other observers The average length of ileum affected was 19 cm, with extreme variations of 4 cm and 60 cm The terminal ileum and ileocaecal region were affected in 17 cases and the distal ileum in 3 Fistulæ from the bowel lumen to the abdominal wall or the bladder were present in 7 cases In no case did the condition affect the jejunum or the colon apart from the small bowel

SUBMUCOUS THICKENING

Thickening of the wall of the ileum was a striking and constant naked-eye change It could be clearly correlated with an equally striking and constant increase in thickness of the submucous coat, sharply limited to the stenosed part of the intestine and easily visible to the naked eye Hypertrophy of the muscular coat was inconstant and variable in degree and tended to be prominent only in the later stages of the disease

ULCERATION

Ulceration was present in all cases In some it was superficial, of slight or moderate degree, and with little penetration of the thickened submucosa by diffuse inflammatory cellular exudate spreading from the ulcer floors In other cases there was deep ulceration with heavy sloughing, cicatrisation, and contracture; the granulation tissue and subacute inflammatory cell exudate in the ulcer floors spreading deeply into the submucosa and muscularis with the formation of intramural abscesses and multiple fistulæ. All transitions were found between cases in which ulceration was superficial and relatively insignificant and those in which loss of surface and its sequels dominated the histological picture, and it was obvious, from a preliminary survey of the cases, that the variation in the intensity of surface ulceration was almost as striking a feature of the morbid anatomy of the disease as the constancy of submucous swelling A more detailed survey showed that the degree of stenosis due to submucous thickening might be just as great in cases in which ulceration was superficial and relatively [illegible] as in those in which it was deep and severe For this reason it appeared likely that submucous thickening preceded ulceration, and that loss of surface might well be the direct consequence of a lesion in the submucous coat This supposition is strengthened by the fact that perforation is a common but late manifestation of regional ileitis and is invariably localised If ulceration of the mucous membrane of the relatively thin walled ileum were the primary lesion, perforation would probably take place earlier and would more often open into the general peritoneal cavity It appears probable that, when ulceration develops, the bowel is already protected by a thickened submucosa, and perforation takes place against the resistance offered by a thickened and rigid bowel wall

THE SUBMUCOUS LESION

In cases in which there was relatively little cellular infiltration spreading into the thickened submucosa from the ulcerated surface and this coat was still covered by long stretches of intact mucous membrane two striking changes were constantly found in it. The more prominent was widespread hyperplasia of its lymphoid tissue, the less striking but equally constant change was obstructive lymphœdema These two processes were obviously sufficient to cause the swelling of the submucosa, even when this was present to a maximal degree The masses of reacting lymphadenoid tissue in such cases varied considerably in size, the largest forming prominent cellular aggregates 3–4 mm in diameter and visible to the naked eye, the smallest, about 0 4 mm in diameter, being microscopic. In three-quarters of the cases the cellular nodules were scattered evenly through the œdematous submucosa, there being 8–18 to the square centimetre They showed considerable cellular activity In some there were nothing more than non specific hyperplasia of reticulum cells and sinus catarrh, each germinal centre in the reacting nodule appearing as a pale-staining cell mass retaining the spherical shape of the germ centre and surrounded by a narrow zone of lymphocytes, the sinusoids between these masses being packed with proliferating littoral cells

This lesion does not constitute a specific histological picture It was, however, accompanied by a highly characteristic cellular response in a variable number of the germinal centres making up a nodule of lymphadenoid tissue The affected germinal centre was entirely replaced by proliferating endothelial cells with weakly staining nuclei The peripheral zone of lymphocytes had disappeared and the cell mass had enlarged unequally, until it was several times larger than the germinal centre in which it originated It had lost its spherical form, had developed a sinuous edge, and was prominent under the low power because of this irregularity in shape and its pale appearance against the dark background of heavily nucleated lymphocytes. In the midst of the cells constituting these endothelial aggregates it was usually possible to identify a Langhans' giant cell, and the lesions, as they became mature, closely resembled the giant-cell systems of miliary tuberculosis

When several hundreds of these submucous lesions had been examined and compared, it became obvious that endothelial proliferation continued in the giant-cell system until it eventually reached a maximal diameter of approximately four to five times that of the germinal centre which it had replaced, and at this stage it might contain two or perhaps three Langhans' giant cells When the giant-cell system has reached this size, cell proliferation apparently ceases, the endothelial cells are no longer ovoid and well defined, their cytoplasm becomes scanty and drawn out into fine processes, and there is a decided increase in the reticulin content of the lesion

This striking retrogression of the giant-cell systems is obviously a slow chronic process and is not accompanied by vigorous fibrosis In none of the many examined in this series of specimens has it been possible to demonstrate acid-fast bacilli, nor has there been the slightest evidence of caseation, necrosis or gross destruction of surrounding tissues, and the lesions remain sharply localised to the segment of bowel affected

The degree of lymphoid hyperplasia in the bowel wall varied considerably. Non-specific hyperplasia was found in 95 per cent of the specimens. Well-defined non-caseating giant-cell systems not containing acid-fast bacilli were found in 13 of the 20 specimens In 5 of these almost every nodule of lymphoid tissue showed this change in an uncomplicated form. In 7 cases, although non-specific lymphoid hyperplasia was easily recognised, the formation of giant-cell systems was considerably obscured by diffuse inflammatory exudate, fistulæ, fibrosis and cicatrisation In 2 of these cases giant-cell systems, although absent in the bowel, were present in the regional lymph-nodes In 5 cases all trace of a specific lesion had disappeared even in the regional glands, and it seemed reasonable to suppose that in these cases the lesion had undergone natural retrogression, for the ulceration and its secondary consequences were identical in these cases and in those in which giant-cell systems could be identified in spite of severe ulceration.

THE GLANDULAR LESION

Probably the most arresting histological feature of regional ileitis is the presence in the regional lymph-nodes of a clear-cut specific formation of giant-cell systems identical with that found in the thickened submucosa. The natural retrogression of this lesion can best be studied in this situation. In cases in which ulceration and its secondary effects are not severe, sections of the regional glands show dozens of lesions, which remain remarkably discrete and retrogress without caseation after reaching a maximal diameter of 0 75 mm. As ulceration becomes deeper, the glandular lesions are obscured by subacute lymphadenitis, and in specimens showing severe ulceration they may be difficult to establish In such cases a microscopic focus of formation of giant-cell systems was occasionally discovered in one gland of a group, the remainder showing nothing more than non-specific lymphadenitis This gland was not always the largest of the group. In other cases a section of one large gland has shown 20–30 pale foci of non-caseating giant-cell systems, whereas in a neighbouring gland, equally enlarged, no trace of the lesion could be found It is essential therefore to examine all available glands when searching for the giant-cell lesion, and it seems very likely that glands containing this lesion must occasionally be left behind at operation.

ÆTIOLOGY

Viewed as isolated and static histological pictures, the giant-cell systems in the glands and bowel are indistinguishable from those of tuberculosis, but their tendency to retrogress without excessive scarring and the absence of caseation and acid-fast bacilli in them force one to doubt their tuberculous origin. In spite of this, tuberculosis cannot be dismissed as an ætiological factor in regional ileitis until it has been excluded by careful cultivation and inoculation of material from a large series of cases. There is solid clinical and radiological evidence against regarding the disease as being a complication of active pulmonary tuberculosis.

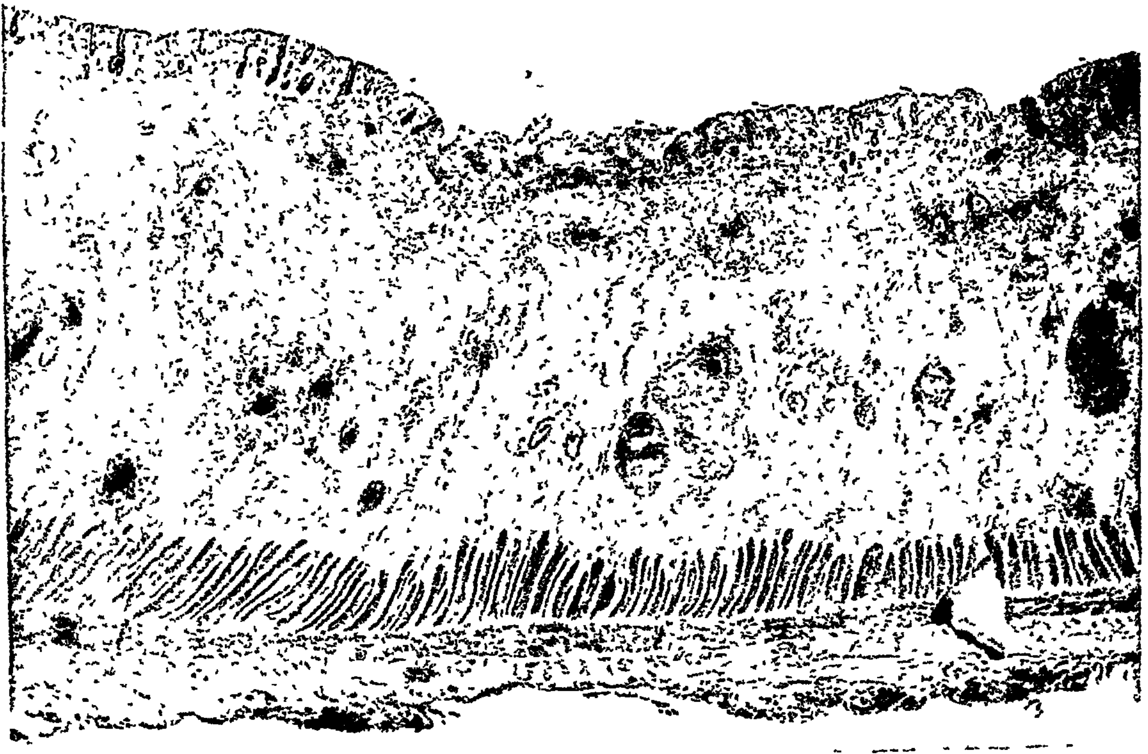


FIG. 1—Ileum, showing early lesion (lymphoid hyperplasia and obstructive lymphœdema of submucosa) and early ulceration (× 10)

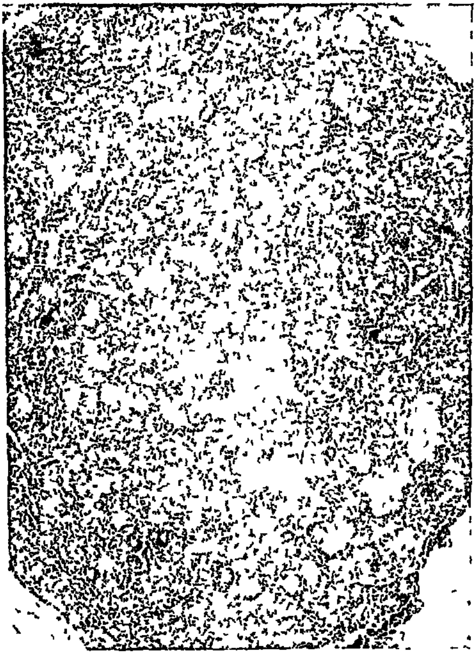


FIG. 2—Lymph node, showing conspicuous pale areas of giant cell system formation. (× 12.)

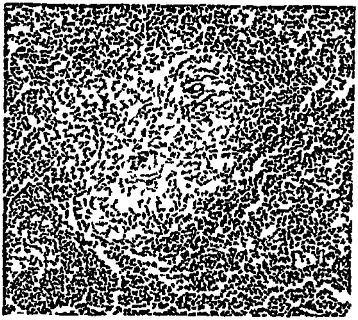


FIG. 3—Giant-cell system in submucosa. (× 152.)

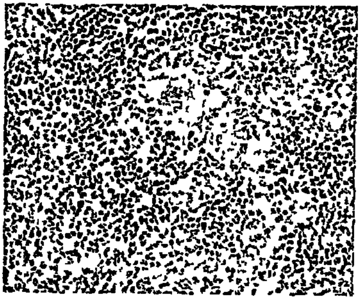


FIG. 4—Early lesion in gland. (× 100.)

From the purely histological point of view the appearance, evolution and retrogression of the giant cell systems of regional ileitis more closely resemble the tissue reaction of Boeck's sarcoidosis than that of tuberculous infection. There is the same tendency to slow spontaneous retrogression and inconspicuous healing, and in neither disease has a specific infective agent been isolated. According to our present conception of sarcoidosis, its period of evolution varies from ten to fifteen years. During this time there is slow generalisation of the disease in several tissues. In some situations, the mediastinum for instance, the lesion may remain latent for long periods, retrogressing after a period of activity and having room to expand during its active phase. There is no such anatomical safeguard when a granulomatous process attacks the bowel, and, unlike classical visceral sarcoidosis, regional ileitis must declare itself clinically at a relatively early stage. The primary submucous lesion with its accompanying lymphœdema appears inevitably to lead to ulceration which often produces a considerable degree of destruction of the bowel wall. In three to four years most of the patients have lost 25 per cent. of their body weight and have developed clinically outspoken chronic intestinal obstruction. At this stage the primary lesion has retrogressed or has been obliterated and the pathological picture is dominated by secondary ulceration and its consequences. With these facts in mind, it appears unjustifiable to dismiss regional ileitis as having no ætiological relationship with sarcoidosis until a series of cases has been watched over a period of eight to ten years and no sign of generalisation discovered.

CONCLUSIONS

(1) The earliest and possibly the specific histological lesion of regional ileitis is lymphadenoid hyperplasia with the formation of non-caseating giant cell systems in the submucosa.

(2) Acid-fast bacilli cannot be demonstrated histologically in these lesions.

(3) This lesion is also present in the regional lymph nodes.

(4) Ulceration and fistulæ are secondary to this lesion in the submucosa and the obstructive lymphœdema which it produces.

(5) Ulceration often obscures and sometimes obliterates the primary lesion in the submucosa. When this has happened, the lesion is not uncommonly found in some or all of the regional lymph nodes.

The Harben lectures of the Royal Institute of Public Health and Hygiene will be delivered by Sir John Orr, F.R.S., on Oct. 16, 17, and 18 at 3 P.M., at the house of the institute, 28, Portland Place, London, W.1. His subject will be the physiological and economic basis of nutrition. Application for seats should be made to the secretary of the institute.

SULPHAPYRIDINE IN TREATMENT OF PNEUMOCOCCUS (TYPE II) PNEUMONIA

By Thomas Anderson, M.B. Glasg., M.R.C.P.E.
DEPUTY PHYSICIAN SUPERINTENDENT AND RESIDENT PHYSICIAN, RUCHILL FEVER HOSPITAL, GLASGOW

Edmund D. Cooper, M.D. Glasg., F.R.F.P.S., D.P.H.,
John G. Cairns, M.B. Glasg., and
David R. Brown, M.B. Glasg., D.P.H.
RESIDENT ASSISTANT PHYSICIANS AT THE HOSPITAL

Several reports have indicated the value of sulphapyridine* (2 (*p*-aminobenzenesulphonamido) pyridine) in the treatment of pneumonia. So far, however, it has been difficult to evaluate the success of the new therapy in Great Britain, since all the reports have lacked information about one or other of the factors which are of importance in making a critical assessment. It would be difficult to enumerate in detail all these factors but the following particulars appear necessary:—

(*a*) The age- and sex-distribution of the cases studied should be known if different series of cases in different places are to be compared.

(*b*) The rapidity with which cases are sent to hospital varies from district to district. A report should therefore give the duration of the illness before treatment began.

(*c*) The criteria of selection for treatment must be stated. In some areas only those patients with a typical lobar pneumonia are included, while in others the cases comprise lobar and bronchopneumonias.

(*d*) The great majority of pneumonias are pneumococcal in origin, but it is well known that the incidence of the different types varies from place to place and from year to year (Cruickshank 1933), and there are wide variations in the fatality-rates of the different types. To report untyped series of cases can add nothing to our knowledge.

(*e*) Invasion of the blood-stream by the infecting organism renders the prognosis more grave (Bullowa and Wilcox 1935), and the incidence of bacteræmia varies in different series of cases. The presence or absence of bacteræmia should therefore be noted.

We realise that as knowledge of a new method of treatment increases, one or other of the above factors may be found less significant or new factors may arise. At the present time, however, each of the above is important.

The results of a therapeutic study should, ideally, be capable of statistical assessment. But where at least five factors have to be taken into account the number of cases required for strict statistical proof would be very large. On the other hand, if a method of treatment is curative, its application should be followed by constant beneficial clinical effect, and in pneumonia a good means of therapeutic trial is to observe the effect of an identical method of treatment upon a series of cases in which the data abovementioned have been accumulated.

During the past winter (1938–39) a study of this nature has been attempted in Ruchill Fever Hospital, Glasgow. The purpose of this preliminary report is to record the results of treatment with sulphapyridine of 70 consecutive cases of acute pulmonary inflammation with evidence of consolidation from which a pneumococcus type II was isolated from sputum and/or blood.

METHODS AND MATERIAL

(1) One of us (T. A.) performed all typing and, to ensure uniformity, confirmed the presence of consolidation in all cases admitted to the series. Thereafter the patients were under the clinical supervision of the other joint authors.

(2) As soon as possible after admission, sputum was obtained, and examined by the direct Neufeld capsule-swelling test (Neufeld and Etinger-Tulczynska 1931), using type-specific rabbit serum (Squibb, Lederle). If no type was obtained by the direct examination, 1 c.cm. of emulsified sputum was injected intraperitoneally into a mouse and later the peritoneal exudate and/or heart-blood of the animal examined for typable pneumococci. (In many cases both methods were used, the mouse-typing confirming the result of the initial direct examination.) Before treatment was begun, a blood-culture was performed by inoculating 15 c.cm. of whole blood into 75 c.cm. of veal broth. After 18–36 hours' incubation, 1 c.cm. of this culture was inoculated intraperitoneally into a mouse and the animal later examined for the presence of pneumococci. If present, these were typed by the Neufeld method.

(3) There were no facilities for the confirmation of diagnosis by means of an immediate radiographic examination. (This is unfortunate, for we think it important that the clinical diagnosis should be so confirmed.) In 44 cases, however, the chest was photographed within three or four days of the temperature regaining normal, and the diagnosis of consolidation was confirmed.

TABLE I—AGE- AND SEX-INCIDENCE

Age in years	Male	Female	Age in years	Male	Female
10–20 . .	15	4	51–60 . .	2	3
21–30	9	4	61–70	1	2
31–40 . .	7	3	Over 70	1	0
41–50	9	10	Total . .	44	26

TABLE II

(*a*) ANALYSIS OF CASES

Clinical estimate of severity			Blood-culture			Classification	
Mild	Moderate	Severe	Positive	Negative	Not done	Lobar	Broncho or atypical
2	42	26	25	37	8	60	10

(*b*) EXTENT OF CONSOLIDATION

L_1	L_2	R_1	R_2	R_3	$R_{1,2}$	$R_{2,3}$	$R_{1,2,3}$	$L_2 R_3$
3	28	5	1	21	3	2	2	6

L_1 = left upper lobe, L_2 = left lower lobe, &c.

(4) The cases were examined daily, special attention being paid to the progress of the consolidated lung and the duration of toxæmia.

(5) All cases received sulphapyridine, usually by mouth. An initial dose of 2·0 g. was followed by a dose of 1·0 g. at four-hourly intervals until the

---

* The use of trade names in the description of the sulphonamide group of compounds has already proved confusing. There is little to commend the use of such in medical literature. We have accordingly adopted the suggestion of the council of pharmacy and chemistry of the American Medical Association (*J. Amer. med. Ass.* 1939, 112, 49) in referring to the drug marketed as M. & B. 693, as sulphapyridine.

temperature had been normal for forty eight hours Thereafter the patient received 0 5 g four-hourly for four days and a similar dose thrice daily for a further three days

Table I shows the age- and sex distribution of the cases It will be noted that this was a favourable one 60 per cent of the patients studied were under the age of forty 27 per cent were below twenty

Table II has been prepared in an endeavour to portray concisely the clinical material studied No method of classifying the degree of illness is free from individual bias Type II pneumococcus pneumonia is, however, usually a severe infection The fact that 40 per cent of those cases in which blood-culture was performed showed blood invasion suggests that we were not dealing with a mild form of the disease The high incidence (14 per cent) of "atypical" pneumonia is probably explained by the circumstance that many of the cases were admitted in January and February, 1939, when there was an epidemic of influenza in Glasgow

TABLE III—DEATHS

No	Age and sex	(a) Days ill before admission, (b) State	Blood-culture on admission	Consolidation	Time in hospital	Remarks
1	75 M	(a) 5 (b) E I	+	R_3	8 days	Myocarditis with fibrillation on admission Lung did not resolve Pneumonia spread to L_3
2	50 M	(a) 4 (b) E I	+	$R_{1\,2\,3}$	2 „	Pulmonary œdema present on admission
3	39 M	(a) 7 (b) M I	+	L_3	8	W R + Chronic alcoholic Post mortem unresolved pneumonia with early abscess formation
4	49 F	(a) 5 (b) E I	+	R_3	24 hrs	Pneumococcal meningitis (type II) present on admission
5	41 F	(a) 2 (b) S I	0	R_3	22days	Delayed resolution and loculated empyema (pneumococcus type II)
6	66 F	(a) 6 (b) E.I	0	L_3 R_3	6 hrs	Moribund on admission

E I, extremely ill, M I, moderately ill, S I, severely ill
+ = Positive 0 = Not done
W R = Wassermann reaction

RESULTS OF TREATMENT

(a) *Fatality rate* —Of the 70 patients, 6 died—i e, 8 6 per cent While it is not intended that any strict comparison should be made, this is a low rate for type II pneumococcus pneumonia, in a previous series of 216 type II pneumonias observed in the same hospital by one of us (T A) from 1931 to 1934 the fatality rate was 28 2 per cent A clinical summary of the 6 fatal cases is given in table III, and it will be apparent that nos 2 4 and 6 could be regarded as inadequately treated, since they were very ill on admission and died before treatment could have much effect The fatality rate of the cases with a positive blood culture on admission was 16 per cent

(b) *Duration in days of primary pyrexia* —Table IV records the duration of pyrexia after admission to hospital These figures have been arranged in relation to the duration of the illness before admission and refer to recovered cases only The average duration of the disease prior to admission was 3 3 days The average duration of fever after admission to hospital was 2 9 days Study of the table shows that in the majority of cases the temperature became normal earlier than would have been anticipated Such figures would lead one to expect a similar rapidity in recovery from the illness, but this was not apparent The patients remained drowsy and depressed and the appetite was poor for a considerable period after their temperature had fallen (It was hoped that the duration of toxæmia might have been charted in a similar manner, but it was found exceedingly difficult to assess this factor) The return to normal after treatment with sulphapyridine was usually slow, unlike the immediate change which takes place with a natural recovery

TABLE IV—DURATION (IN DAYS) OF DISEASE BEFORE ADMISSION, AND PYREXIA AFTER ADMISSION
(Deaths excluded)

Days ill before admission	*No of* cases	Pyrexia in hospital (days)					
		1	2	3	4	5	Over 5
0	3	—	2	1	—	—	—
1	12	1	6	3	—	1	1
2	13	1	5	3	2	—	2
3	12	3	6	2	1	—	—
4	8	2	2	2	—	2	—
5	5	—	2	2	1	—	—
6	4	1	—	2	—	1	—
7	3	—	1	1	1	—	—
8	2	—	2	—	—	—	—
10	1	—	—	—	1	—	—
12	1	—	—	—	—	—	1
Total	64	8	26	16	6	4	4

An attempt was made to correlate the slowness of recovery with the presence or absence of bacteræmia While the proportion of cases in which fever only lasted one day in hospital was materially greater in those whose blood culture was negative (16 per cent against 5) this difference was shortly overcome, so that the proportion in the two groups in which fever lasted three days was almost equal (blood positive, 76 per cent, blood negative, 78 per cent)

It seemed to us, however, that this slowness in general recuperation might be explained by the delay in the resolution of the pneumonic consolidation In almost half the cases the resolution was exceedingly slow, and in some of them signs of consolidation were still evident two or three weeks after the temperature became normal In fact, of 59 cases in which it was possible to make an assessment, in only 14 (24 per cent) did the consolidation resolve within a normal period In many cases dismissal was delayed owing to the presence of extensive fibrosis in the consolidated area Hence the duration of residence in hospital of recovered cases was prolonged averaging 30 days (maximum 97 days minimum 18 days)

(c) *Complications* —Table V shows the main complications encountered The large number of sterile effusions developing is, in our experience, unusual In none of them did untoward symptoms arise, and the effusion, after aspiration, cleared up spontaneously The number of cases developing empyema is not unusual for type II pneumococcus pneumonia Like others, we have found empyema a more common sequela of type I pneumococcus pneumonia, and the high incidence of empyema recorded by some observers who have reported series of untyped pneumonias suggests that they were dealing largely with type I infections.

TABLE V—MAIN COMPLICATIONS

Sterile pleural effusion	6
Empyema	3 (1 died)
Meningitis	1 (died)
Severe myocarditis	2 (1 died)
Secondary anæmia	1
Subacute mastitis	1
Conjunctivitis and corneal ulcer	1

Besides the above complications directly due to the pneumonia, there were three unusual sequelæ

One patient (17 years) developed scarlet fever during convalescence. He was a contact in the ward with a patient suffering from a hæmolytic streptococcal pneumonia.

A second patient (48) developed a "reinfection" pneumonia. On admission he was acutely ill with a lobar consolidation of the right lower lobe. Culture of the sputum and blood on admission showed type II pneumococci. The primary pyrexia lasted three days, and during this period he received 6 g. of sulphapyridine daily. On the third and fourth day in hospital he complained of some nausea and the dose of the drug was reduced to 3 g. daily. Symptoms of intolerance increased. He had severe vomiting and abdominal pain and treatment with the drug was discontinued. On the sixth day in hospital he again became severely ill During the next few days the illness increased and he was found to have extensive consolidation of the lung. This time the sputum was found to contain no type II pneumococci, but types XX and XXX were present. A mouse was inoculated with the sputum and from the peritoneal exudate and heart-blood of the mouse type XX pneumococci only were obtained (Unfortunately, through an oversight, the blood was not cultured again at this period.) He was unable to retain a sufficient dose of sulphapyridine and the illness ran an extremely stormy course. Resolution was greatly delayed, myocarditis was severe and he was only dismissed after 97 days in hospital.

In a third case the patient complained in convalescence of loss of control of the rectal sphincters. There were no other motor or sensory disturbances. A few days later he had a moderate hæmoptysis for which no explanation could be found, despite repeated radiological and laryngoscopic examinations. This may well have been a chance occurrence: at any rate we could not explain it.

(*d*) *Drug toxicity*—We found nausea the most common evidence of intolerance to the drug and it was noted in more than half the cases In 10 cases (14 per cent), however, nausea and vomiting, often accompanied by epigastric pain, became so severe that treatment had to be stopped Cyanosis was difficult to estimate, but in 2 cases it was severe and ascribed to the drug Rashes due to the drug occurred in 3 cases Diarrhœa and extreme delirium were encountered (1 case each) and attributed to the drug

Vomiting was not traceable to administration of other drugs in association with sulphapyridine, and the use of glucose or sodium bicarbonate did not relieve either vomiting or nausea. We consider these to be the most serious drawback to the drug. Patients were encountered who pled with us not to give them any more tablets

Lassitude and mental lethargy were often encountered The sulphonamide drugs as a group seem to have a general depressant effect, and it was noticeable that patients treated with sulphapyridine required sedatives less frequently than others

DISCUSSION

Our record shows that the fatality-rate for type II pneumococcus pneumonia was exceptionally low in Ruchill Fever Hospital during the winter of 1938–39 Its fall can be attributed either to a sudden change in the severity of the disease or to the new treatment introduced. While we are of the opinion that the former explanation is partially true, the completely unexpected recovery of a number of critically ill patients has convinced us that much of the benefit came from the introduction of sulphapyridine The fact that only 40 per cent of our cases were over the age of forty years, when the prognosis worsens, undoubtedly operated in favour of the low fatality-rate On the other hand, bacteræmia was present in 40 per cent, which indicates a moderately severe form of the disease

We are of the opinion, therefore, that sulphapyridine is of considerable value in the treatment of type II pneumococcus pneumonia. Three disadvantages remain to be studied—namely (1) the definite lag in recovery, (2) the delay in resolution of the consolidation, and (3) the gastric upset which sometimes necessitates the stoppage of treatment

We wish to thank Dr. W. M. Elliott, physician superintendent of Ruchill Fever Hospital, for permission to carry out the investigation, and Mr. Thomas Gallie for his assistance with the laboratory work.

REFERENCES

Bullowa, J G. M., and Wilcox, C. (1935) *Arch. intern Med* 55, 558

Cruickshank, R. (1933) *Lancet* 1, 621

Neufeld, F, and Etinger-Tulczyuska, R (1931) *Z Hyg InfektKr.* 2, 492.

PNEUMONIA TREATED WITH M. & B. 693

A REVIEW OF 342 CASES *

BY OLAF ROMCKE, M D.

CHIEF PHYSICIAN AT THE DEPARTMENT OF MEDICINE, DRAMMEN HOSPITAL, NORWAY, AND

ERIK VOGT, M D

PHYSICIAN, DEPARTMENT VII, ULLEVÅL HOSPITAL, OSLO, NORWAY

Evans and Gaisford's statement in THE LANCET of July 2, 1938, on the treatment of pneumonia with M. & B. 693, aroused considerable interest among Norwegian doctors, and the preparation was soon in use in our hospitals We have collected all the records of pneumonia treated with M & B 693 at the different departments of medicine in Norway between the middle of October, 1938, and the beginning of May, 1939 Though the material is taken from different parts of the country it is nevertheless sufficiently homogeneous to be dealt with as a whole

Clinically the cases fall into two main groups—namely, lobar pneumonias and atypical pneumonias The second comprises all those that did not reveal the typical picture of a lobar pneumonia, and it largely consists of those ordinarily described as bronchopneumonias

In order to obtain, as far as possible, an objective basis for judging the effect of the drug we have found it necessary to exclude cases in which the diagnosis was doubtful, those in which the pneumonia was secondary to other diseases or followed operation, those in which improvement seems to have set in before treatment started those in which empyema was present on admission to the hospital, and those in which the patient died within twenty four hours of admission (9 cases)

---

* Summary of a communication to the twelfth Northern Congress of Internal Medicine For further details see *Nordisk Medicin* for June 24, 1939

In 68 per cent of cases the chest was radiographed, in 57 per cent the sputum was examined bacteriologically, in 38 per cent blood culture was performed, and in the majority of the cases the leucocytes were counted at regular intervals

FATALITY-RATES

As regards the immediate action of M & B 693 our experience accords with that of other investigators and needs no description We shall concentrate rather on the effects which, because of its size, our material appears especially capable of illustrating—particularly the effect on the case mortality

Excluding the 9 who died within twenty-four hours of admission 20 out of 342 patients died—a fatality rate of 5 8 per cent (table I) If the 9 are included the fatality rate is 8 3 per cent During the period under review all cases of pneumonia received M & B 693, and we thus cannot provide simultaneous control material Previous statistics, however, show that the fatality rate of all pneumonias (lobar + atypical) at the Oslo municipal hospital at Ullevål during the years 1928–38 varied between 20 5 and 35 2 per cent

TABLE I—FATALITY RATES

—	No of cases	Died	Mortality (%)
Total excluding deaths within 24 hr	342	20	5 8
Total including deaths within 24 hr	351	29 (20 + 9)	8 3
Lobar	251	11	4 3
Atypical	88	9	c 10

A glance at our lobar pneumonias treated with M & B 693 shows an even more conspicuous decrease in case mortality During the period 1028–38 the figure varied between 17 8 and 34 8 per cent, but after M & B 693 was introduced it fell to 4 3 (table I) For atypical pneumonias the numbers are too small to permit of definite conclusions

TABLE II—AGE DISTRIBUTION

Age	0–2	3–10	11–20	21–30	31–40	41–50	51–60	61–70	71–80	81–
No treated	28	29	43	46	52	51	40	32	15	6
Died	2	0	0	1	1	3	3	4	4	2
Mortality	2 8%						14%			

If the total material (lobar + atypical) is divided into two groups composed of individuals under and above fifty years of age the younger group shows a case mortality of 2 8 per cent and the other one of 14 per cent (table II) For lobar pneumonias (254 cases) the corresponding figures are 1 6 per cent (193 cases) and 12 9 per cent (but only 61 cases, cf table III) At Ullevål Hospital the mortalities for the same age groups in 1910–32 were 12 6 per cent and 44 4 per cent respectively

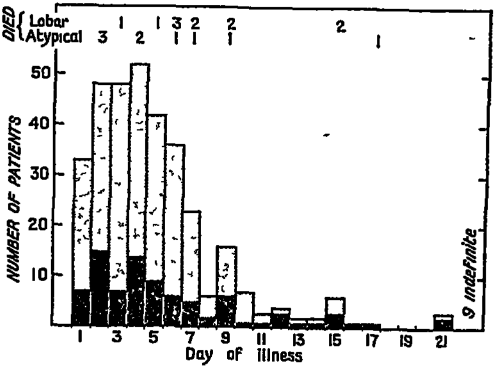


Chart showing the day of illness on which treatment started The stippled columns represent lobar pneumonia and the black columns atypical pneumonia

TABLE III—LOBAR PNEUMONIAS

—	Treated with M. & B 693		
	No	Died	Mortality (%)
Under 50 years	193	3	1 6
Above 50 years	61	8	13

FATAL CASES AND COMPLICATIONS

Of the 20 patients who died 6 were over seventy years of age In all the 11 fatal lobar pneumonias the process affected more than one lobe, whereas this was true of only 33 of the 243 who recovered. Approximately half (9) of the fatal cases already had a disease which must be assumed to have influenced the course of the pneumonia Of the 11 lobar-pneumonia patients who died, only 2 came up for treatment during the first five days of the illness (see figure)

The following complications were noted —

Pleural effusion	18	Diarrhœa	3
Otitis	9	Phlebitis	3
Bacteræmia	6	Delirium tremens	2
	(1 fatal)	Pericarditis	2
Jaundice	5	Delayed resolution	1
Empyema	4	Lung abscess	1
Auricular fibrillation	3	Paroxysmal tachycardia	1
	(1 fatal)	Pneumothorax	1

Under pleural effusion are included only those cases in which this was definitely demonstrable clinically It will be seen that of the patients with complications only 2 died

Blood culture was attempted in 121 cases, or about a third of the series The low figure for positive blood cultures must be put down to the fact that in 40 cases the blood was taken as early as the second or third day of illness when a positive finding is rare, and to the fact that in 90 cases it was taken after the commencement of therapy

SPUTUM

In 253 cases sputum was obtainable; in 89 it was lacking. In 212 cases the sputum was bacteriologically examined, and the results were as follows:—

Pneumococci present 197 (144 typed)
„ absent 15

The distribution of pneumococcal types in the 144 typed cases is shown in table IV. It will be seen that the commonest were I–III and VII which between them accounted for 64 per cent. of all the types found. Our investigations do not permit of any conclusions as to the relation of the type and the case-mortality; but we would call attention to the fact that out of 27 cases of type III only 1 died.

TABLE IV—TYPING OF PNEUMOCOCCI IN SPUTUM

Type	Number	Lobar	Atypical	Died
I	49	46	3	3
II	3	3	—	—
III	27	25	2	1
IV	7	6	1	—
VI	3	1	2	—
VII	15	15	—	—
VIII	11	10	1	—
XIII	1	1	—	—
XIV	2	2	—	—
XV	1	1	—	—
XVI	3	1	2	—
XVII	4	2	2	—
XVIII	3	3	—	—
XIX	5	5	—	1
XX	3	3	—	1
XXII	1	1	—	—
XXIII	1	1	—	—
XXIV	1	1	—	—
XXV	3	2	1	—
XXXII	1	1	—	—
Total .	144	130	14	6

THE TREATMENT

Treatment with M. & B. 693 has generally followed the plan advised by the manufacturers, Messrs May and Baker, and for the 284 patients over ten years of age the average total dose has been 22 grammes On the basis of the present material we dare not assert what dosage is best This question will probably be answerable only by comparing clinical results with serial determinations of the concentration of the medicament in the blood.

The figure shows the time at which treatment commenced in the main groups It will be seen that of the 78 lobar pneumonias admitted after the fifth day of illness 9 died, while of the 171 cases admitted in the first five days only 2 died.

EFFECT ON THE TEMPERATURE

Among our 342 cases 90 showed a critical fall in temperature In 227 cases the temperature fell by lysis—usually in the first forty-eight hours In 25 cases there was only a temporary effect on the temperature or none at all Of these 25, 20 died, but in the remaining 5 (3 lobar and 2 "atypical") the temperature seems to have been entirely unaffected by M. & B. 693 despite comparatively big doses. One was of a type I infection, one a type XIX, and in the third the reddish sputum was not examined bacteriologically.

In 47 cases there was a secondary rise in temperature, for no apparent reason, though in 4 it may have been caused by the drug. In only a few cases did it seem that the secondary rise was due to a relapse —probably developing because the medicine had been withdrawn too early, for the fever rapidly disappeared on renewal of treatment. The secondary rise was usually insignificant (below 100·4° F.) and was apparently unaffected by the drug.

TOXIC EFFECTS

Cyanosis was common and many patients complained of nausea and of feeling unwell. Many vomited, but often they did not do so till about an hour after the drug had been administered. In 6 per cent the vomiting was severe enough to render treatment difficult, and in a couple of cases the use of M. & B. 693 had to be stopped

No case was observed in which the therapy could definitely be shown to have caused anæmia. In 3 patients the hæmoglobin dropped to 70 per cent, but such a fall may well be ascribed to the illness In a majority of cases the leucocytes were counted at intervals of a few days: in 9 patients the count fell to 3000–4000 per c mm. and in 2 others it fell to 2000–3000. Agranulocytosis was observed in one single case—that of a boy of thirteen whose leucocytes dropped to 2200 (2 per cent monocytes, 98 lymphocytes, and no granulocytes at all) This patient recovered after treatment with liver extract and Nuclosin; his illness is more fully reported by Bj Fretheim in *Tidsskrift for den Norske Lægeforening,* 1939. 59, 702.

A rash was noted in 7 patients and in 3 of these it was accompanied by a rise in temperature (drug fever) There was hæmaturia for a short time in 2 of the cases and 2 others had mild diarrhœa

SUMMARY

This report summarises observations on 342 cases of pneumonia (254 lobar and 88 "atypical") treated with M. & B. 693 in various Norwegian hospitals between October, 1938, and May, 1939. Excluding those in which the patient died within twenty-four hours of admission the fatality-rate is 5·8 per cent., while if these are included the rate is 8·3 per cent. For the lobar pneumonias (254 cases) the case-mortality is 4 3 per cent, and for lobar pneumonia in persons under fifty years of age (193 cases) it is only 1·6 per cent. Of the 78 patients with lobar pneumonia admitted after the fifth day 9 died, whereas the 171 admitted earlier in their illness included only 2 deaths.

The commonest complications were pleural effusion (clinically demonstrable in 18 cases) and otitis (9 cases), empyema developed in 4 patients.

Pneumococci from the sputum were typed in 144 cases, and 64 per cent. were found to belong to types I–III and VII Of 27 patients with a type III infection 1 died.

The average dose of M & B. 693 administered to 284 patients of more than ten years of age was 22 grammes. Excluding fatal cases, a rapid effect was produced in all cases treated except 5 in which the temperature and course of the disease seem to have been unaffected by the drug

In 47 cases there was a renewed rise in temperature without any demonstrable complication, but the secondary rise seldom went above 100·4° F.

The toxic effects included nausea, vomiting and cyanosis. Vomiting made treatment difficult in 6 per cent of the cases. Drug fever was diagnosed in 4 patients, in 3 of these and in 4 others there was a rash. In 11 cases leucopenia was found and in 1 case agranulocytosis, followed by recovery. Hæmaturia developed in 2 cases and diarrhœa in 2

DEFECTIVE HEARING AND NUTRITION IN CHILDREN

BY PHYLLIS M TOOKEY KERRIDGE, Ph D, M R C P
LECTURER IN PHYSIOLOGY AT UNIVERSITY COLLEGE, LONDON AND

GWENDOLINE BRIGGS, D P CHOYCE, AND JANET HILL
MEDICAL STUDENTS AT THE COLLEGE

THAT many school children have slight defects of hearing has become evident both in England and America, since mass testing of hearing has become relatively easy and accurate through the use of the gramophone audiometer Their number amounts to about a third of a million in England Middle ear disease is the usual cause of the defect, it may lead to deafness sufficient to be an immediate handicap, but more often it produces a disability only in later life when the damaged tissues contract with age Many patients attending a hearing-aid clinic trace their "ear trouble" back to discharging ears in childhood

Incidence of Deafness

Severe deafness is not common among children In England about 0 1 per cent of children attending public elementary schools are deaf enough for special educational provision to have been provided for them Even if the basis of admission of deaf children to special schools were widened to include some children with minor defects at present in the ordinary schools, the number would probably not exceed 0 15 per cent These figures are based on the report of the committee appointed by the Board of Education (1938) to inquire into problems relating to children with defective hearing

In a survey of the London children in the schools for the deaf and partially deaf I found that about half of them were born deaf and about a third were deaf as a consequence of middle ear disease (Kerridge 1937) The middle ear disease was a complication of a specific fever in about half of the otitis cases The number of cases so caused may be expected to decrease with improvements in treatment of the specific fevers, and it will be particularly interesting to see what ultimate effect the sulphonamide drugs have on this cause of middle ear disease and deafness

Since it is well known among otologists that chronically discharging ears are much commoner in hospital practice than among private patients, one or more of the factors associated with poverty may be supposed to be a contributory cause or an obstacle to the cure of the condition Middle-ear disease being the result of an infection, it may be supposed that an estimate of its incidence in a child population would be a measure of the resistance to infection of that community, but the matter is not simple, as the following facts show (1) the virulence of the initial infection may vary in different localities and epidemics, (2) chronic discharge may be kept up by the presence of debris in the ear which requires surgical removal, which may or may not be adequately *dealt with, for some parents seem to regard* a discharging ear in a child as insignificant and not worth medical attention, (3) middle ear disease may be catarrhal and not suppurative, and (4) since the resulting deafness depends on the amount of the subsequent contraction of the tissues besides the damage at the time of the infection, obviously a simple quantitative relation cannot be expected between the resistance to infection and the degree of deafness

Plan of Investigation

The research described in this paper was planned in the hope that some *indication might be found for* the prevention of deafness due to middle ear disease Some of the factors associated with chronic middle ear disease in children have been investigated It was decided to test the acuity of hearing of sample groups of children in Great Britain who lived under different social conditions In one series the groups were chosen from good environments in private preparatory schools, high schools, and grammar schools, both day schools and boarding schools, in another series the children were in public elementary schools or in ecclesiastical orphanages The latter were chosen because they represented institutions which were hard pressed for funds All the children tested were between 7 and 14 In children under 7 it is not always easy to get coöperation for an exact test, even if the children are tested individually, and any form of selection of children was considered inadvisable for the present purpose Children over 14 were not tested, because it was difficult to collect many in the group with the poor social conditions, for they leave school at or soon after that age

The children were tested in batches of 30–10 with a gramophone audiometer This instrument and its use are fully described in the report of the Board of Education (1938) The newer English record was used, which has two columns of three-digit numbers Every child was given a second chance of doing the test before being classed as a failure, the second test being done on the same day as the first to eliminate failures caused by *misunderstanding or by lack of* attention. It did not avoid failures due to temporary respiratory infections.

Children who failed the second time were tested individually, and in most cases a teacher's report on their mental capabilities was obtained But, although it was desirable not to include as failures due to defective hearing those children who were so mentally backward that they could not do the easy test, the two factors are not easy to separate in the younger children A child may be slow at school because he cannot hear easily, or because of poor health and spirit due to any cause of minor chronic ill health, including middle-ear disease, or because of absences from school on that account or by reason of more than one of these excuses However, the proportion of cases in which there was doubt as to the true cause was small *A medical history was obtained whenever* possible, but these were of very varying reliability.

The ears were examined with an auriscope to detect wax, but, since time did not permit of retesting after removing the wax, some of the failures attributed to wax in the ears may have been partly due to middle-ear disease Finally the child was tested with a pure-tone audiometer by air and bone conduction for acuity of hearing over the auditory spectrum In this way the amount and the location of the defect to the middle or inner ear could be determined

Results

Children with good social conditions —The findings in about 1000 such children are summarised in table I, section 1 In those schools in which there *were children attending on scholarships gained from* elementary schools the results of such children were subtracted from the bulk In other words, the parents of all the children considered in this series were paying school fees and may therefore reasonably be supposed to have had sufficient money for adequate food and housing of their children There is no significant difference between the results in boarding schools and in day schools In this series the failures attributable to middle ear disease were usually due

TABLE I—DEFECTIVE HEARING IN CHILDREN UNDER VARIOUS SOCIAL CONDITIONS

(1) GOOD SOCIAL CONDITIONS

School	Boarders or day-pupils	Sex	Number tested	Failures (per cent)
Secondary (Kent)	B & D	G	122	3·2
High (London) .. .	D	G	274	3·3
Preparatory M (London) .	D	B & G	52	7·4
Preparatory N („)	B & D	B	175	1·7
Preparatory (Oxford) .	B & D	B & G	245	3·3
High (East Anglian town)	D	G	82	0·0
Grammar („ „)	D	B	99	1·0
	Total		1049	2·8

(2) POOR SOCIAL CONDITIONS

School	Boarders or day-pupils	Sex	Number tested	Failures (per cent)
Public elementary schools—				
Housing-estate (near London)	D	B & G	2754	13·5
Industrial town (near Manchester) . .	D	B & G	1338	11·4
East Anglian town .	D	B & G	1344	10·6
„ (poorest quarter)	D	B & G	(93)	(22·6)
Orphanages—				
A (near Manchester)	B	B & G	65	7·7
B („) ..	B	B & G	55	9·1
C („)	B	B & G	70	10·0
D (Scotland)	B	B & G	250	22·8
	Total		5876	12·1

to a past acute attack In many cases, however, the same medical history was obtained, including a mastoid operation, and the child passed the test easily There was no case of chronic discharging ear in this group The mean failure-rate was 2·8 per cent., and the range 0–7·4 per cent

Children with poor social conditions—These results, in nearly 6000 children, are summarised in table I, section 2, which shows figures very much higher than in section 1, the mean being 12·1 per cent and the range 7·7–22·8 per cent. So that the comparison shall be more accurate, the results are given in fig 1, calculated with regard to the numbers of children at each age This is a fairer comparison because the incidence of the disease decreases with age, and the distribution of children between 7 and 14 was not equal in the two series. Fig 1 shows that the children with the poorer social conditions had a higher incidence of defective hearing at each age, and that the school with the highest average incidence also had a high figure throughout the period of child life under consideration. The differences are statistically significant. (We are indebted to Dr F N. David, lecturer in statistics at University College, for advice on this point) The improvement in middle-ear disease with increase in years is usually attributed to anatomical changes, which make it more difficult for infections of the nasopharynx to spread to the middle ear, because the eustachian tube becomes relatively narrower and more oblique

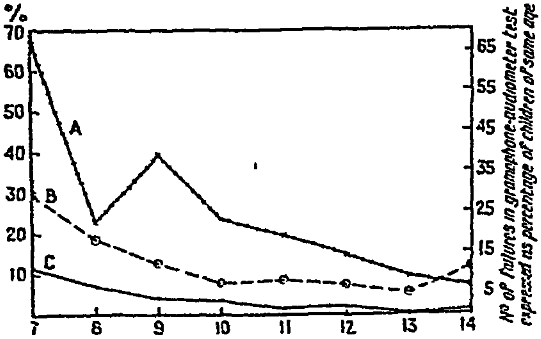


FIG. 1—Variation of defective hearing with age between 7 and 14 years. A, 255 children in a Scottish orphanage; B, 5840 children in public elementary schools; C, 1048 school children whose parents paid fees

Taking the average figures, it may be said that defective hearing is about four times as common among the children under the inferior social conditions as it is among the children whose conditions may be considered adequate on modern English standards. In the worst cases the incidence may be nearly ten times as high as in the good conditions, and nearly a quarter of the children may have impaired hearing.

The figures for the failures at 13 years for the children at public elementary schools and for fee-paying children are 5 per cent and 0 respectively (At 14 the numbers of children in the elementary-school group are small, for many of the children leave school because they obtain employment; hence 13 has been taken for this comparison) That the failure-rate *may remain high during adolescence among children* who have come from poor environments is shown by an investigation of boys in an industrial school in Scotland, where the failures, in summer, of boys between 13 and 16 were 17 per cent.

TABLE II—CHILDREN WITH DEFECTIVE HEARING IN PUBLIC ELEMENTARY SCHOOLS IN A HOUSING-ESTATE NEAR LONDON, SUBDIVIDED INTO BOARD-OF-EDUCATION GRADES

—	Number of children	Per 1000 children tested
Grade 1	380	129
Grade 2	3	1
Grade 3 . .	1	0·3

Grade 1 children with defective hearing who can, nevertheless, without special arrangement of any kind, obtain proper benefit from the education provided in an ordinary school—elementary, secondary, or technical

Grade 2 children whose hearing is so defective that they require for their education special arrangements or facilities but not the educational methods used for deaf children without naturally acquired speech or language These facilities range from a favourable position in the ordinary school class room to attendance at a special class or school

Grade 3 · children whose hearing is so defective and speech and language are so little developed that they require education by methods used for deaf children without naturally acquired speech or language This grade includes the totally deaf

DEGREE AND CAUSES OF DEFECTIVE HEARING

Most of the hearing-defects detected were slight, and the children would have been classed in grade 1 of the Board of Education's categories, because they might have profited from medical examination and treatment but were *not sufficiently deaf to be handicapped educationally* A small minority of the children without doubt should have been classed as grade 2, as requiring special facilities or arrangements, such as a favourable position in class-room and in some cases a simple hearing-aid, and they would have been helped by an ability to lip-read The numbers of such children could not be assessed, for it was impossible to discuss each child with his teacher in the time available. As is pointed out in the Board of Education report (1938), the disability

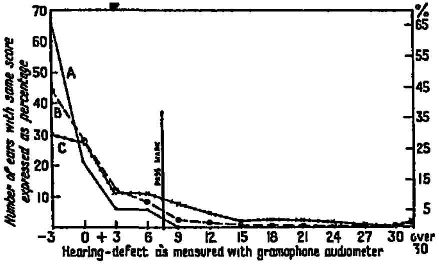


FIG 2—Hearing of school children in an East Anglian town. A, 181 children whose parents paid fees; B, 1344 children in public elementary schools; C, 93 children, attending public elementary schools, from the poorest quarter of the town.

of a deaf child depends on his intelligence besides the amount of his hearing defect, and grading cannot be done as a result of a medical examination alone. The more severely deaf children from the areas tested were already in schools for deaf children, but their number is relatively small. In one district particulars were obtained of such children, including an audiogram of their hearing. In this case, therefore, a complete grading of the children with defective hearing can be given, as in table II. This community is, however, not altogether typical, for it consisted of children living in a new housing estate, with more uniformity of social conditions than would be found in most districts.

In those districts and institutions where the incidence of defective hearing was higher than the average, the degree of defect was also much greater. This important point is illustrated in fig. 2, which relates to the East Anglian town tested. The amount of the defect has been plotted against the relative number of times it was observed in the case of (1) the high schools and grammar schools, (2) the elementary schools, and (3) the school in the poorest part of the town. The curves broaden with the increase in poverty, showing that the greater defects were commoner with the poorer conditions. In the best schools no child had a worse score than 0, in the poor schools some exceeded 30 decibels from the mark considered normal for the average child in the average class room.

TABLE III—CAUSES OF FAILURES IN GRAMOPHONE AUDIOMETER TEST OF CHILDREN IN THE EAST ANGLIAN TOWN

Type of school	Cause of failure	Cases (per cent)
High schools and grammar-schools	Past middle ear disease	0·5
Public elementary	Wax	1·3
	Mental backwardness	1·2
	Middle-ear disease	8·1
—	Total	10·6

The causes of deafness among the children in the East Anglian town are summarised in table III, which is typical of figures found elsewhere. At least 80 per cent of the failures are attributable to middle-ear disease, either suppurative or catarrhal. No case of inner ear deafness was found among the children in the survey. It would have been detected in the pure tone audiometer test by abnormalities in bone conduction. Any child with severe inner ear deafness would have been already removed to a school for deaf children. No evidence, therefore, was found of inner ear deafness similar to that observed by Mellanby (1938) in animals suffering from a deficiency of vitamin A. It is, however, possible that some of the cases of unknown ætiology in the schools for severely deaf children may be due to this cause. In my survey of children in the London deaf schools the number in which the cause was unknown was 11·5 per cent—i.e., 0·01 per cent of the school population of Great Britain (Kerridge 1937).

SEASONAL VARIATION IN ACUITY OF HEARING

There is a well-recognised seasonal variation in catarrhal conditions, and the present work would be seriously incomplete if some attempt had not been made to assess the effect of the time of the year on the acuity of hearing, for catarrhal middle ear disease is so prevalent. Apart from this, seasonal changes make a difference to food, the amount of open air life, and general health. It was impossible to test all the children in both summer and winter. Besides general difficulties of time and place, full summer in England and Scotland is very short when the school holidays are subtracted from it. As a more practical measure the groups which gave the worst results in the winter—i.e., the Scottish orphanage, and the two worst schools in the East Anglian town—were revisited in the summer. The Scottish orphanage was again visited in the following winter. Table IV shows that the figures, although lower in summer than in winter, are still high compared with other places. Besides this, the housing estate was revisited in the summer, and those children who had failed in the winter were retested. Two thirds of these passed the test in the summer, although they had had no treatment. This result, however, is not comparable with those in table IV, for all the children on the housing estate were not retested. In the Scottish and East Anglian schools the lists of failures were not identical in the two seasons, some children passing in the winter and failing in the summer, and vice versa. This is not surprising, for a very slight change in the physical condition of the middle ear can make a great difference to the mobility of the moving parts of the cavity and so influence the efficiency with which sound is conducted across it. The degree of deafness in middle ear disease is well known to be variable by those who suffer from it.

TABLE IV—SEASONAL VARIATION IN DEFECTIVE HEARING IN CHILDREN

—	Failures in gramophone audiometer test (per cent)		
	Jan, 1938	July, 1938	Jan, 1939
Orphanage D (Scotland)	22·3	15·3	21·0
	April, 1938	July, 1938	
East Anglian town—			
School x	22·6	14·3	
School y	14·0	14·4	

FACTORS IN POOR SOCIAL CONDITIONS

Most investigators of social conditions encounter difficulties in the analysis of the manifold factors which comprise them, and the same problems were met in the present work. The following remarks

TABLE V—ASSESSMENT OF DIET

—	Families in group	Cals	Prots *	Carb	Fat	Ca	P.	Total Fe	Avail. Fe.	Vitamins		
										A	B	C
			g.	g	g.	g.	g	mg	mg		complex	
East Anglian town (poorest quarter)[1]												
Families spending less than 5s per head per week on food; average intake per head per day	47	2076	53 (18)	316	61·9	0·354	0·756	8·43	6·33	1357	240	593
Mean of all families tested; average intake per head per day	157	2780	72·2 (29·4)	324	99	0·58	0·83	11·9	8·68	2380	389	923
East Anglian town (poorest quarter)[2] Poorest families only												
Average intake per head per day	9	2090	52·6 (25·3)	307	71·8	0·432	0·798	8·03	.	2080	331	646
Average intake per man value per day	..	3150	79 (39·1)	462	108	0·646	1·196	13·4	,	..	..	
Industrial town near Manchester[2]—												
Average intake per head per day	35	2550	62·4 (29·0)	350	94·6	0·562	0·964	11·82		2730	353	743
Average intake per man value per day	.	3220	78·6	442	124·5	0·717	1·23	15·2		.	..	.
Orphanage D (Scotland)[1]—												
Intake per head per day	.	2315	71·7 (31·4)	401·6	55·2 (29·9)	1·035	1·502	12·0	.	920	532	964
Estimated requirements	.	2326	85·1	..	100	1·08	..	12–15	.	5000	480	1500

* Numbers within brackets in the protein column are estimates of animal-protein intake.

1. Figures of Rowett Research Institute, 1938. 2. Figures of Ministry of Health, 1937.

must therefore be taken not as a strictly scientific dissection of the sole factor among the social conditions which is particularly noxious as regards hearing but as a practical attempt to see whether the results obtained indicate the most likely factor

All the children, being school-mates, mixed together by day, and some children in both good and poor social groups were in residential institutions. Since some of the results were very good and there was no difference between day-schools and boarding-schools, the mere herding of children does not seem to have been harmful in this respect. Nor does housing seem to be the chief factor, for the children in the orphanages near Manchester (with fair results) and the Scottish orphanage (with bad results) were all well housed besides having a resident staff who supervised the children's cleanliness and health The results at orphanages near Manchester did not differ from those of the children in the neighbouring town, where the parents worked in the mills and the houses were crowded. The bad results in the Scottish orphanage are very similar to those in the worst part of the East Anglian town and to a poor quarter in America Gardner (1938), reporting on the results of gramophone-audiometer tests on 46,095 pupils in Iowa schools, said that the failures usually varied from 3 to 12 per cent, and that in a poor economic district the incidence was 22 per cent. The similarity of these figures to those found in the present investigation is very striking.

Climate also seems to have less effect than might be supposed, the figures for the damp districts round Manchester, the housing-estate near London, and the elementary schools in the East Anglian town being very similar, although the average rainfall for one of the towns near Manchester is about twice that of the East Anglian town (43·2 in. and 23 in respectively) The high failure-rate obtained in the Scottish orphanage cannot be attributed to the rigours of the climate or to difficulties experienced by Scottish boys in understanding numerals spoken by an Englishman (as was suggested), for in another Scottish residential school in a similarly exposed position as regards climate the failures amounted to 1 per cent. only. This school was for the sons of Scottish men in the Army, Navy, or Air Force, and it has not been included in the general comparison, for the pupils were unique in having a strict medical inspection on entry to the school and at weekly intervals thereafter.

NUTRITION OF THE CHILDREN

The children in the two series did, however, differ greatly in the food they obtained Some of the districts in which children were studied were chosen because dietary surveys had been carried out there either by the Ministry of Health or by the Rowett

TABLE VI—DIET OF SECONDARY SCHOOL IN KENT WITH 3 2 PER CENT FAILURES IN HEARING TEST

<table>
<tr><th>Breakfast</th><th>11 A M</th><th>4 P M</th><th>High tea</th></tr>
<tr><td>*Daily:* porridge (except Sunday), tea, bread (white and brown), butter, syrup or marmalade, all as much as required, oranges</td><td>Milk, ⅓ pint</td><td>Milk, ⅓ pint</td><td>Tea, bread and butter as much as required, oranges</td></tr>
<tr><td>*In addition.*</td><td colspan="2">Dinner</td><td></td></tr>
<tr><td>Monday · baked beans</td><td colspan="2">Stewed steak, carrots, potatoes, jam roly</td><td>Macaroni cheese, brown sugar</td></tr>
<tr><td>Tuesday. potato cakes</td><td colspan="2">Sausages, greens, potatoes, ground rice mould, jam</td><td>Bacon honey</td></tr>
<tr><td>Wednesday · haddock</td><td colspan="2">Steak and kidney pies, peas, potatoes, stewed apricots and custard</td><td>Baked potatoes, cheese</td></tr>
<tr><td>Thursday. ham</td><td colspan="2">Rissoles, greens, potatoes, cake pudding, syrup</td><td>Boiled eggs, jam</td></tr>
<tr><td>Friday · salmon paste</td><td colspan="2">Fish pies, onions, steamed chocolate pudding and sauce</td><td>Welsh rarebit, dates</td></tr>
<tr><td>Saturday bananas</td><td colspan="2">Boiled salt beef, potatoes, beans, brown bread, honey, apples</td><td>Spaghetti on toast, jam</td></tr>
<tr><td>Sunday · sausages</td><td colspan="2">Cold salt beef, baked potatoes, beetroot, apple pies, hard sauce</td><td>Gingerbread, biscuits, jam</td></tr>
</table>

Daily at bedtime apples

Research Institute The places for which such data were available were the poorest schools in the East Anglian town, the Scottish orphanage, and part of the industrial town near Manchester Both the Ministry of Health and the Rowett Research Institute have used the same food-analysis tables in compiling their results, details of which will be given when their results are published The diet results relevant to the present survey are summarised in table V, which shows that the diets of the children in the groups which suffer most from middle ear disease are low in total calorific value, in protein (particularly animal protein), and in vitamins This coincidence of deficient diet and the high incidence of hearing defects may mark an interrelation, but the fault cannot be traced to a specific food component, because so much is lacking in some of the diets The differences between the food obtained under the different social conditions is seen perhaps more vividly, if less scientifically, when the menus for a week are compared in one of the secondary schools in the good group, an orphanage near Manchester, and the Scottish orphanage (tables VI–VIII) As part of the investigation for the Carnegie Trustees, the children in the Scottish orphanage and in the poorest quarter of the East Anglian town have been given extra food for a year Hearing tests have been repeated in these districts at the end of the feeding experiment, but the incidence of hearing defect in both cases was found to be unchanged The results of this experiment (which will be given more fully in the report of the Carnegie investigation) are disappointing but not surprising The prevention of a disease is a different matter from its cure, not all damaged tissues can be effectively repaired

TABLE VII—DIET OF ORPHANAGE A, NEAR MANCHESTER, WITH 7 7 PER CENT FAILURES IN HEARING-TEST

—	Breakfast	Dinner	Supper
Monday	Porridge cocoa, bread and margarine + 10 % butter	Stew potatoes vegetables bread	Bread and jam or dripping cocoa
Tuesday	"	Sausage, potatoes, peas, bread	"
Wednesday	Bread and margarine butter mixture cocoa	Pea-soup with vegetables, bread rice pudding with raisins (condensed milk)	"
Thursday	As Monday	Mutton stew potatoes, vegetables, bread	"
Friday	As Wednesday	Fish cakes, potatoes, butter beans bread, sago pudding (condensed milk)	Bread and margarine-butter mixture
Saturday	"	Minced meat, potatoes, onions, green peas bread	As Monday
Sunday	As Monday	Sausages potatoes, butter beans bread, stewed figs custard	Bread and margarine-butter mixture cake tea

Conclusion and Summary

The work here described has given numerical expression to the clinical opinion that middle ear disease is very common among the children of the poorer classes It is about four times as common, on the average, under poor social conditions as it is under good social conditions in the poorest places, whether urban or institutional, it may be nearly ten times as common as in a good environment, nearly a quarter of the child population being affected Climate, housing, and the mixing of children seem to have little effect on the incidence of the disease

TABLE VIII—DIET OF ORPHANAGE D (SCOTLAND) WITH 22 8 PER CENT FAILURES IN HEARING TEST

Breakfast		Tea
Daily porridge (except Sunday) skimmed milk, scones, margarine		Brown bread (1 slice), white bread (1 slice) tea
In addition	Dinner	
Monday	Scotch broth, bread, treacle pudding	Syrup
Tuesday	Cottage pie, turnips, rice pudding	Margarine, dates
Wednesday	Lentil soup bread, sago pudding	Syrup
Thursday	Stewed beef soup, vegetables bread, semolina pudding	Margarine, dates pastries
Friday	Split pea soup bread, steamed fig pudding	Margarine, cheese
Saturday	Minced beef, potatoes rice pudding	Jam
Sunday fried bread, tea, bread marmalade	Corned beef potatoes sago pudding and prunes	Margarine gingerbread, orange

Daily at supper cocoa, 2 cakes

The children with the highest incidence of defective hearing had diets deficient in many factors, but an increase in the food taken by two groups of these children for a year did not reduce the incidence of defective hearing

The figures here given show that probably the most important work on the prevention of deafness will be done by those who are striving to improve the social conditions and, in particular, the nutrition of the nation Many writers on diet have discussed the relative effects of ignorance and poverty on malnutrition, and most are agreed that where there is sufficient money nutrition is usually adequate, and that it takes knowledge and careful skill to provide adequate nourishment for a family when money is scarce One of our most regrettable findings is that shortage of money makes the conditions so unsatisfactory in institutions in which the staff have the necessary knowledge as to how children should be looked after Here again the prevention of deafness is in the hands of the administrator

The Ministry of Health and the Rowett Research Institute very kindly gave permission for the results of their dietary surveys to be used in this article, and thanks are specially due to Dr H E Magee, Sir John Boyd Orr, and Mr David Lubbock The expenses of the research were paid by the Medical Research Council To the London School of Hygiene and Tropical Medicine and to the National Institute for the Deaf we are indebted for the loan of apparatus and we thank also the medical officers of health, school principals, and teachers without whose coöperation the work would have been impossible

REFERENCES

Board of Education (1938) Report of Committee of Inquiry into Problems relating to Children with Defective Hearing, London

Gardner W H (1938) *J Iowa St med Soc* 28 99

Kerridge, P M T (1937) *Spec Rep Ser med Res Coun* No 221

Mellanby, E (1938) *J Physiol* 94 380

HERNIA THROUGH THE FORAMEN OF WINSLOW

BY MAURICE SILVERSTONE, Ch.M. Lpool, F.R.C.S.

HONORARY ASSISTANT SURGEON AT THE BIRKENHEAD GENERAL HOSPITAL AND BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL

HERNIA through the foramen of Winslow is rare—possibly the rarest type of internal hernia

Ullman (1924) collected 29 cases from the literature and added one of his own. Dewis and Miller (1927), in reporting a case, drew attention to those recorded by Corry and by Copenhaver (1923), but omitted from Ullman's list, and mentioned a case described by Delagenière (1924).

From both of these lists are omitted cases reported by Rawlence (1918), McKenzie and Wood (1924–25), and Carling and Smith (1925–26). Since then cases have been mentioned (without details) by Masson (1926) and described by Thévenard (1928), who besides his own case found one recorded by Mariotti (1908) and one by de Graeuve and not included in the above reports; Deaver and Burden (1929); Aigrot (1930, 1931); Blanc (1932); Kerr (1934); Langley (1935) (not operated on); Davidson (1936); and Day (1937) Further cases have been described by Foster (1925–26), Green (1927), Richter (1928), Gabrielli (1931), Russ (1932), and Pallasse and Thomasset (1936).

ÆTIOLOGY

It is unlikely that in a normal abdomen a hernia through the foramen of Winslow will occur, and Moynihan and Dobson (1906) have suggested that at least one of the following anomalies exists and acts as a predisposing factor :—

(1) A common mesentery for the whole of the intestine.

(2) Absence of secondary fusion of the ascending colon to the posterior abdominal wall.

(3) An abnormally large foramen. The normal foramen usually admits the index finger and occasionally the index and middle fingers.

(4) An abnormally long mesentery allowing undue mobility of the intestine.

Thévenard (1928) noted the presence of a well-developed hepaticocolic ligament, which he thought might direct the passage of the intestine before it herniated through the foramen, and suggested that in hernia in which reduction by traction had been over easy the strangulation might occur at this site, and that there was not really a hernia through the foramen of Winslow.

A definite exciting factor has not been found In some of the cases reported there has been a history either of undue abdominal contraction, undue exercise, constipation, defæcation, or labour, or the attack has followed a heavy meal (Square 1886, Treves 1888, McKenzie and Wood 1924–25, and Blanc 1932) The sex-incidence—28 men to 11 women—also supports the suggestion that exertion is a factor. On the other hand, in many cases there is no history that suggests any undue muscular contraction

Clinically, cases may be divided into (1) the commoner acute group and (2) a less common group, in which the hernia exists without symptoms or accompanied by symptoms of vague digestive disturbance only—a sense of epigastric discomfort, fullness, and weight. According to Case and Upson (1926) the latter group can be diagnosed by radiography, and they have laid down as a diagnostic criterion the identification of the small intestine anterior to the hepatic flexure or first part of the transverse colon. Jackson (1930) has described such a case, in which he made the diagnosis from the X-ray findings. At operation the small intestine was found in the main peritoneal cavity; but, since the foramen of Winslow admitted three fingers, Jackson considered his case authentic There can be no doubt, however, that such a group of a developed hernia without gross symptoms exists. Thus Dewis and Miller (1927) in their case considered the history before the acute onset suggestive of this, and Langley (1935), who described a case of double intestinal obstruction, concluded that the hernia through the foramen of Winslow was of long duration and that strangulation had developed secondary to the distension following a stricture in the sigmoid. Schwalbe (1904), quoted by Ullman (1924), described a post-mortem on a woman dying of parenchymatous nephritis and aortic and mitral insufficiency, in whom the small intestine had passed through the foramen of Winslow into the lesser sac without strangulation.

SYMPTOMS AND SIGNS

In the acute group the symptoms are severe Pain is an outstanding feature and is usually felt in the epigastrium or the right hypochondrium, but it may be diffuse and may be felt in the right iliac fossa. The pain is severe, comes on suddenly, and doubles the patient up. The suddenness of onset and the severity of the pain vary, however, and in some cases the onset is more gradual Vomiting usually comes on with the pain and is reflex in origin. As a rule it persists, but in two cases the vomiting did not begin till the second or third day of the illness, and in McKenzie and Wood's (1924–25) case it was absent throughout, despite the fact that the strangulated bowel was jejunum. There is usually absolute constipation both for fæces and flatus. In a few cases this absolute constipation has been late in onset or incomplete, especially when the large bowel has been involved, and operation has been delayed because of the absence of vomiting and because of the positive response to enemata, as in my case In Dewis and Miller's (1927) case the patient was constipated for three days and then had diarrhœa It is evident, if it be granted that the hernia may be spontaneously reduced, that this may happen to some extent during an attack, with consequent abatement of the vomiting, with passage of flatus, and with relief of pain The variability of the severity, suddenness of onset, and progress of symptoms indicates in some cases the onset of obstruction before strangulation, which is brought about by the kink produced by the weight of the obstructed bowel, whereas in others the strangulation takes place immediately the hernia is formed

The physical signs accord with the symptoms. In some cases an epigastric or peri-umbilical swelling appears, which may be resonant or dull on percussion. The abdomen becomes generally distended, although the maximal distension may be in the upper abdomen with flattening in the iliac fossæ There is epigastric tenderness and perhaps a sense of resistance or even rigidity.

DIAGNOSIS

The diagnosis is usually one of acute intestinal obstruction, although occasionally it is that of a perforated peptic ulcer At operation it has not always been possible to diagnose the site of obstruction, and in some cases drainage through the gastrohepatic omentum of an underlying swelling, or an enterotomy, or a lateral anastomosis has been done without discovering the cause The small intestine is contained in the hernia twice as often as the large. The site of strangulation is at the margins of the foramen of Winslow. In Blandin's (1834) case (quoted by Ullman 1924) the strangulation was produced by the margins of a hole in the transverse mesocolon, through which the bowel, having passed through the foramen of Winslow, emerged secondarily The strangulated bowel has burst through the gastrohepatic omentum and has been found lying in front of the stomach (Schmilinsky 1919, Copenhaver 1923, and Carling and Smith 1925–26) In the other cases a swelling has been evident occupying the lesser sac, and this may be visible through the lesser omentum, or the stomach may appear to ride on a swelling situated deep to it The presence of bowel in the lesser sac does not necessarily indicate a hernia through the foramen of Winslow, the hernia may be, for example, *through a rent in the transverse mesocolon* (Short 1924–25, and Heaney and Simpson 1925–26)

TREATMENT

The treatment advocated may be summarised as follows —

(1) Simple traction, aided preferably by pressure on the swelling in the lesser sac

(2) Preliminary enterotomies to lessen the distension and traction

(3) Traction after dilatation of the foramen of Winslow Dilatation must be gentle and is unlikely to help much, having in mind the boundaries of the foramen It helped in the reduction in Sinclair's (1909) case and in Engstad's (1919), in which the peritoneum round the margin was also torn

If the above fail, then either of the two following operations may be done —

(4) Opening of the lesser sac through the lesser or greater omentum or transverse mesocolon—the latter is said to be safest (Ullman 1924)—and reducing the bowel with or without preliminary enterotomy *to empty it and so facilitate traction. If necessary,* resection could be done here

(5) Reduction after *débridement* of the orifice as suggested by Jeanbrau and Riche (1906) Braner (quoted by Ullman 1924) found that the space to be opened up, the "interporto-choledochous" space, retroduodenal in site, was non-existent in a number of cadavers and in half the cases examined was crossed by blood-vessels Although theoretically possible of accomplishment, in the presence of acute obstruction and in an ill patient it would seem to be impracticable Neither this, nor the alternative suggestion of mobilising the second part of the duodenum, has ever been practised in the living

If reduction is impossible by any of the above methods, an enterotomy or lateral anastomosis may save life In the case recorded by Dewis and Miller (1927) *the diagnosis was not made* and the lesser sac was drained only This patient lived 31 days and at necropsy it was found that the whole of the small intestine except the proximal 120 cm and the distal 90 cm, was strangulated, and that death was due partly to lack of nourishment and partly to toxic absorption from a large infected cavity between the abdominal wall and the peritoneum

Of the 44 cases whose records are accessible to me 33 were submitted to operation with 15 recoveries The case here recorded adds a male patient who died after operation

CASE RECORD

The patient, a warehouseman aged 47, was suddenly struck at 11 A M on Sept 17, 1938, with acute intermittent pain in the epigastrium and the umbilical region, the latter pain radiating upwards The pain was colicky and associated with vomiting His pulse-rate was 160 and his temperature 97° F at the onset of the attack

He was put to bed, and his pulse rate dropped to 95 The pain gradually eased off, and by 3 P M only a dull ache remained His bowels had been opened that day He vomited again in the afternoon On examination the epigastrium was tender and rigid, the rest of the abdomen being normal Apart from some vague gastric trouble some years ago his history was uneventful

A diagnosis of biliary colic was made During the next twenty-four hours his temperature rose gradually to 100° F and his pulse-rate varied between 90 and 100 His temperature then returned to normal, with the pulse rate at about 95

I saw him first on the evening of the 19th He had not vomited and had only a general ache in his abdomen He had been treated with fluids, and his bowels had been opened with enemata His tongue was moist and furred and his face slightly sunken His abdomen was diffusely distended and resonant, and there was some tenderness below and to the right of the umbilicus There was no tenderness on rectal examination He had evidently a subacute obstruction, but the absence of vomiting and the positive response to enemata, with subsequent slight diminution of the distension, led me to think that the obstruction was incomplete and possibly due to a mild plastic peritonitis secondary to a leaking ulcer

No untoward symptoms, apart from a maintained pulse-rate of 90–95, arose till early on the 22nd His pulse-rate had risen to 100–105, he began to feel sick, and during the course of the day he vomited slightly His distension had become worse, causing increased discomfort, and he had passed no flatus for twenty-four hours—the response to an enema given late on the 21st being poor

Operation (Sept 22) —Under spinal anæsthesia the abdomen was opened through a right paramedian incision, a stomach tube having been passed to empty the stomach The small intestines were acutely distended, and there was no peritonitis or pelvic lesion No collapsed bowel could be demonstrated, and evisceration was not attempted in view of the patient's condition

The incision was extended upwards, for the bowel seemed to be tacked down in the region of the right hypochondrium rather than elsewhere There was also a feeling of fullness and an ill defined swelling behind the stomach, these findings suggested a hernia through the foramen of Winslow

An enterostomy was done This helped to empty the bowel somewhat, and the cæcum and ascending colon could be palpated—they were collapsed On passing my hand towards the foramen I found collapsed small intestine issuing from the foramen and distended bowel entering it The index and middle fingers passed into the foramen with ease, and attempts were made by traction and lifting the intestine to reduce the strangulated loop This was not at first successful, except for delivering about 2 in. of bowel, but, since the ring appeared *not to be constricted round the intestine*, the attempt was persisted in and was successful after the bowel in the immediate neighbourhood had been further emptied The loop consisted of about 2 ft of ileum, which, being apparently non-viable, was rapidly resected, and a lateral anastomosis was performed Intravenous glucose was given during the operation and continued on the patient's return to the ward, but he collapsed and died some hours afterwards The resected ileum was about 3 ft away from the ileocæcal valve The foramen of Winslow was obviously enlarged, admitting two fingers together with the distended bowel Because of the poor condition of the patient, no other abnormality was looked for or noted

SUMMARY

Previously reported cases of hernia through the foramen of Winslow are reviewed and the ætiology, signs and symptoms, diagnosis, and treatment discussed A fatal case is described in which part of the small intestine had herniated through the foramen and become strangulated

References at foot of next page

CLINICAL NOTES

INDUCTION OF ABORTION IN THE COW

BY INUNCTION WITH STILBŒSTROL DIPROPIONATE

By S. J. Folley, M.Sc, Ph.D Manc.
AND
Helen M. Scott Watson, B A. Camb.
(From the National Institute for Research in Dairying, University of Reading)

It has been known for some years that injections of natural œstrogens will interrupt pregnancy in the rat and mouse Recently Parkes, Dodds, and Noble (1938) have shown that oral administration of the synthetic œstrogen, stilbœstrol, will inhibit implantation of the ovum in the rat and rabbit, and that ethinyl œstradiol by mouth will terminate pregnancy in the rabbit at 9–14 days *post coitum* In view of the possible application of these results to women, experiments in the same field on species other than laboratory rodents and with other methods of administration are of obvious interest. The observations on cows recorded below were obtained in the course of an experiment on lactation.

Two groups of four British Friesian cows were used, all animals being both pregnant and in lactation. In each group two animals were in advanced pregnancy and two in earlier stages (see table).

Since no satisfactory endocrinological pregnancy test has been devised for cows, pregnancy is presumed on the basis of physical examination coupled with the absence of œstrus after service. Such criteria are not always reliable in the early stages, but in advanced pregnancy there can be little doubt.

STAGE OF PREGNANCY* REACHED BY COWS AT TIME OF LAST INUNCTION

Experimental		Control	
Cow	Days pregnant	Cow	Days pregnant
L	184	P24	202
P13	162	S	158
P23	101	P	114
R	54	W	111

* The gestation period in the cow is approximately 280 days

Stilbœstrol dipropionate was administered by inunction of the udder with an ointment (lard and olive-oil base) The control animals received similar treatment with ointment containing no œstrogen. The experiment began with five inunctions, each with 5 g. of 1 per cent. ointment, evenly spread over 15 days, followed over the next 14 days by six spaced inunctions, each with 10 g. of the same ointment, and concluded with two inunctions spaced over five days, each with 10 g of 2 per cent. ointment The total amount of stilbœstrol dipropionate applied to each cow therefore amounted to 1 25 g. or. since the cows each weighed about 1200 lb, approximately 2 4 mg. per kg.

Both of the experimental cows in more advanced pregnancy (L and P13) delivered dead fœtuses on the day following the last inunction—i e., at 185 and 163 days respectively. With regard to one of the other two œstrogen-treated animals the results are not so clear-cut Cow P23 was observed to be in œstrus 45 days after the last inunction, which, assuming that she really was pregnant at the time of the experiment (pregnancy was indicated by the two above-mentioned criteria) would mean that the treatment had terminated pregnancy in her case too. Against this are the facts that no fœtus from her was found and no physical signs of a recent abortion observed, and that cows have occasionally been known to come into œstrus in mid-pregnancy. The remaining cow, R, has not been observed in œstrus since the treatment, and there is no doubt that she is still pregnant. The possibility that the abortions were caused by some dietary factor, such as ergot, is excluded because no interference with pregnancy was observed in any of the control animals. Contagious abortion is also ruled out, because tests for *Brucella abortus* in the fœtuses by culture and guineapig inoculation, and in the blood of the dams by agglutination, were negative.

It is of considerable interest that in the cow administration of large doses of œstrogen should lead to termination of pregnancy in its later stages, particularly in view of the fact that in advanced pregnancy the cow excretes considerable amounts of œstrogen (Nibler and Turner 1929, Barrie, Patterson, and Underhill 1935). Indeed, our results suggest that the cow is more sensitive to this action of œstrogen in the later stages of gestation than earlier, which is perhaps somewhat unexpected in view of the rise in œstrogen excretion during pregnancy. This last conclusion is, however, subject to some uncertainty owing to the difficulty of making a precise diagnosis of pregnancy in its earlier stages in this species. Women also excrete large amounts of œstrogen during pregnancy, and it is therefore possible that in women the

---

MR. SILVERSTONE: REFERENCES

Algrot, G (1930) *Lyon Chir* 27, 675
Blanc, H (1932) *Bull Soc Chirurgiens Paris*, 24, 66.
Blandin, P F (1834) Traité d'anatomie topographique, 2nd ed, Paris, p 467; quoted by Ullman (1924)
Braner, S, quoted by Ullman (1924)
Carling, E R, and Smith, A T (1925–26) *Brit J. Surg* 13, 585
Case, J T, and Upson, W O (1926) *J Amer med Ass* 87, 891.
Copenhaver, N H. (1923) *Proc Mayo Clin* 15, 322
Corry (1917) *Indian med Gaz* 52, 130; quoted by Dewis and Miller (1927)
Davidson, J K (1936) *Aust N Z J Surg* 5, 311
Day, R. S (1937) *Med J Aust.* 1, 633
Deaver, J B, and Burden, V G (1929) *Surg Clin N Amer* 9, 1013
Dewis, J W, and Miller, R. H (1927) *Surg Gynec Obstet* 45, 95
Engstad, J E (1919) *J. Amer med. Ass* 72, 411
Heaney, F J S, and Simpson, G C E (1925-26) *Brit J Surg* 13, 387
Jackson, B H (1930) *Amer J Surg* 8, 1065
Jeanbrau, E, and Riche, V (1906) *Rev Chir, Paris*, 33, 618
Kerr, R A (1934) *Lancet*, 1, 454
Langley, G F (1935) *Brit J Surg* 23, 119
McKenzie, W G, and Wood, D. (1924–25) *Ibid*, 12, 613
Masson, J C (1926) *J Amer med Ass* 87, 897.
Moynihan, B G A, and Dobson, J F. (1906) Retroperitoneal Hernia 2nd ed, London
Rawlence H. E (1918) *J R. Army med Cps*, 30, 332.
Schmilinsky, Herr (1919) *Deut med Wschr.* 45, 477.
Schwalbe, E (1904) *Virchows Arch* 177, 561; quoted by Ullman (1924)
Short, A R (1924–25) *Brit J. Surg* 12, 456
Sinclair, T (1909) *Brit med J* 1, 646
Square, J E (1880) *Ibid*, 1, 1163
Thévenard, (1928) *Bull Soc Chirurgie Paris*, 20, 462.
Treves, F (1888) *Lancet*, 2, 701
Ullman A. (1924) *Surg Gynec Obstet* 38, 225

LITERATURE NOT CONSULTED

Algrot, G. (1931) *Bull. Soc nat Chir.* 57, 534
Delagenière, H (1924) *Ibid*, 50, 552
Foster, M E (1925-26) *J Ark med Soc* 22, 64.
Gabrielli, S (1931) *Rif med* 47, 654
de Graeuwe, *J Chir, Brux* 11, Nos 5, 6; quoted by Thévenard (1928)
Green, E K (1927) *Minn Med.* 10, 451
Mariotti, G (1908) *Rif. med.* 24, 963, quoted by Thévenard (1928)
Pallasse and Thomasset (1930) *Lyon méd* 158, 605
Richter S (1928) *Upsala LäkFören Förh* 34, 303
Russ, W. B (1932) *Tex St J Med* 28, 384

administration of œstrogen might have a similar effect during most of the period of gestation

A further point of interest attached to these experiments is the undoubted efficiency of inunction as a method of administration of stilbœstrol dipropionate

We are indebted to Prof R Rae and Mr K W D Campbell, of the Reading University Farm, for valuable cooperation and to Dr A T R Mattick and Dr P M F Shattock for bacteriological examination for *Brucella abortus* The stilbœstrol dipropionate was generously given by Dr F L Pyman, F R S, and Dr W F Short, of Messrs Boots Pure Drug Co Ltd

REFERENCES

Barrie M M O Patterson J B F and Underhill S W F (1935) *Quart J Pharm Pharmacol* 8, 424
Nibler, C W and Turner, C W (1929) *J Dairy Sci* 12, 491
Parkes A S, Dodds, E C, and Noble R L (1936) *Brit med J* 2, 557

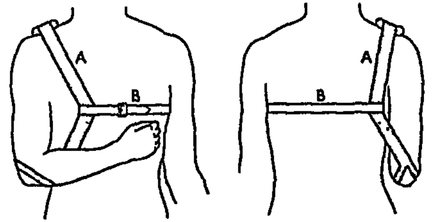
ACROMIOCLAVICULAR DISLOCATIONS AND FRACTURES OF THE CLAVICLE

A SIMPLE METHOD OF SUPPORT

By Grahame Rawlings, M B Camb
LATE CASUALTY OFFICER AND HOUSE PHYSICIAN, ST THOMAS'S HOSPITAL, LONDON

All the uncomplicated methods of treating acromioclavicular dislocations and fractures at the outer end of the clavicle aim at depressing the outer end of the clavicle and lifting the arm to restore the apposition of the clavicle and acromion This is usually achieved by passing adhesive strapping over a pad on the shoulder and underneath the elbow This method tends to be unsatisfactory in that the tension of the strapping diminishes fairly quickly and frequent reapplications are necessary If a non adhesive material is used, it slips off the shoulder very easily Furthermore, in the tropics, to leave adhesive strapping stuck to the skin for any length of time is contra-indicated owing to the readiness with which sepsis and necrosis of the skin take place beneath the strapping

The method to be described has been found to be extremely simple in operation and very effective in producing the required depression of the clavicle and elevation of the arm Loop A (see figure) can be made of some material such as heavy linen and should be 2–3 in wide At one point a 6 in longitudinal slit should be made B is a webbing strap fitted with an adjustable buckle, behind which is a flap to protect the skin Reference to the diagrams will make the method of application self explanatory Loop A passes over a pad on the shoulder, and the point of the elbow rests in the longitudinal slit Strap B is taken round the chest and passed round loop A in front and behind Tightening this strap results in a pull downwards on the shoulder and upwards on the elbow It is obvious that the tighter the strap is made, the greater will be the force exerted on the shoulder The wrist is supported by a narrow sling round the neck



Support for acromioclavicular dislocations and fractures of the clavicle A, B, see text

It will be found, by judicious arrangement of the length of the loop and by fixing the points of attachment of the strap, that the shoulder can also be braced backwards, thus making the apparatus suitable for treating other fractures of the clavicle

As a first aid measure, ordinary bandages can be used satisfactorily

---

New Inventions

A USEFUL ENTEROTOME

The enterotome I have been using for some time has in my opinion several real advantages over the many other forms In the treatment of carcinoma of the pelvic colon Paul Mikulicz's operation gives excellent results and the mortality is low In this operation the growth is brought outside the abdomen and excised, the two loops of bowel being joined together and fixed to the abdominal wall The enterotome used should be simple in action and give even pressure on the two loops of bowel In the one that has been made for me by Messrs Vann Brothers of London, the two blades lie parallel with each other and are controlled by a thumb screw (fig 1) The instrument is small and can be easily incorporated in gauze over the openings in the bowel Fig 2 shows the enterotome in situ, crushing the spur formed between the two loops of sigmoid colon

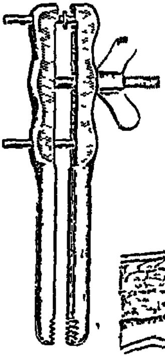


Fig 1

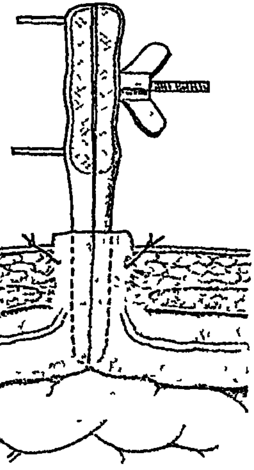


Fig 2

Cecil P. G. Wakeley, F R C S

REVIEWS AND NOTICES OF BOOKS

Anemia in Practice

Pernicious Anemia. By WILLIAM P. MURPHY, A.B., M.D., *associate in medicine, Harvard Medical School ; consultant hematologist, Melrose Hospital, Melrose, Mass.* London : W. B. Saunders Co. 1939. Pp. 344. 22*s.* 6*d.*

Principles of Hematology

By RUSSELL L HADEN, M A., M.D., *chief of the medical division of the Cleveland Clinic, Cleveland, Ohio , formerly professor of experimental medicine in the University of Kansas school of medicine.* London · Henry Kimpton. 1939. Pp. 348. 21*s.*

Recent Advances in Hæmatology

(4th ed.) By A. PINEY, M D. Birm , M R.C.P., *assistant physician to St. Mary's Hospital for Women and Children, London.* London : J. and A. Churchill. 1939. Pp. 312. 15*s.*

THERE have been a succession of textbooks on hæmatology in the last few years which have presented in different words the facts set out by their predecessors But hæmatology did not come to a standstill with the discovery of the liver treatment of pernicious anæmia and of the part played by dietetics and conditioned deficiencies in hæmopoiesis. Important work on hæmoglobin metabolism has since been done in Germany by Heilmeyer and is still being done in both America and England. A knowledge of the mechanism of hæmoglobin breakdown is essential to an understanding of hæmolytic anæmia, and the new views on pigment balance necessitate a revision of many accepted ideas Yet no textbook available makes any mention of the advances made along these lines These three books are no exception : on certain aspects of modern hæmatology they are completely out of date.

Dr. Murphy's work is in fact a monograph on the diagnosis and treatment of pernicious anæmia with a few brief chapters on other types of anæmia, technical laboratory procedures and transfusion He has investigated and treated 578 patients with pernicious anæmia and his analysis of the geographical, racial, sex- and age-incidence, complications and prognosis is inevitably of interest. He agrees that provided treatment is adequate and there are no complications the prognosis is extremely good

Dr. Haden presents his principles in a novel diagrammatic form The red cells are seen being formed in a tank representing the bone-marrow, falling through a series of pipes representing the circulation and finally, after passing through liver and spleen, appearing in the form of iron and bile-pigment. The levels obtained in the three stages of formation, circulation and destruction vary in different types of anæmia. The letterpress is throughout extremely decisive and the student who reads the book will never know that certain facts are still obscure. For instance, vitamin C is stated to be the cementing substance by which the endothelial cells are held together. The leukæmias are simply classified as myeloid, lymphocytic and monocytic, no mention being made of the obscure and difficult group often discussed under the ill-defined term " reticuloses " Dr Haden places special emphasis on the technique of examination as he believes that clinical interpretations necessarily depend on accurate and complete laboratory data. He illustrates his points with 168 original photomicrographs, and his book has the merit of presenting old facts in a new guise

Recent Advances in Hæmatology describes the same facts in a more orthodox fashion. Only a few pages of the older editions have been incorporated, the whole of the rest having been rewritten. Modern views of the origin and development of the blood-cells are discussed in the first chapter ; this is followed by chapters on symptomatic blood changes, the different types of anæmia, the leukæmias and the erythræmias. Dr. Piney seems to make no attempt to bridge the gap between the leukæmias and diseases affecting the reticuloendothelium, hæmorrhagic diseases—hypoplastic and aplastic states of the blood-forming organs —being placed between the two. Apart from a few surprising statements, for instance, that achlorhydria or hypochlorhydria are invariable in so-called idiopathic hypochromic anæmia, this book gives an adequate summary of orthodox textbook hæmatology.

Micro-Diffusion Analysis and Volumetric Error

By E. J. CONWAY, M.B., D.Sc., N.U.I., *professor of biochemistry, University College, Dublin.* London : Crosby, Lockwood and Son. 1939 Pp. 306. 25*s.*

FEW things have contributed more to the recent advancement of medical science than the introduction of micro-chemical methods of analysis Micro-methods for blood-sugar, blood-urea and so on, unknown a few years ago but already taken as a matter of course, have brought about a revolution in clinical investigation and every new method puts a new weapon in the clinician's hands. Prof Conway is a pioneer in micro-chemical methods and this book describes in critical manner the techniques of using micro-pipettes, micro-burettes and other micro-analytical apparatus including the Conway micro-diffusion unit. The Conway unit is already in use in many hospital laboratories for ammonia, urea and micro-Kjeldahl determinations. Further applications of this useful and labour-saving device are now given for determining blood adenylic acid, adenyl pyrophosphate, adenosine, volatile amines, halogens and blood carbon dioxide (as a method of estimating " alkali reserve " and blood pH). The accuracy of these methods has been worked out in great detail and the book contains a valuable series of chapters on estimating such factors as the chemical error and the variable glass error in microchemical titrations This is a book that will be welcomed in every progressive laboratory.

Life's Beginning on Earth

By R. BEUTNER, M.D., Ph D , *professor of pharmacology at the Hahnemann Medical College and Hospital of Philadelphia.* London : Chapman and Hall. 1939. Pp. 222. 12*s.* 6*d.*

THE apparent rift between living and non-living matter is so vast that to speculate on the origin of the one from the other has never been considered by biologists as anything but an idle recreation. In recent years, however, discoveries have been made which enable speculation to take a rather less nebulous form, though we are not necessarily approaching nearer to the truth. The discovery of the crystalline nature of some viruses and of the crystal properties of several constituents of living matter has certainly opened up a suggestive field. Certain viruses at least are apparently pure substances, but, *like living matter*, they can increase their substance from surrounding materials by a kind of enzyme action. We seem here to be confronting the borderline or perhaps a stage in the gradual transition between non-living and living matter. Most of Prof. Beutner's book is made up of descriptions of experiments whereby non-living substances can be made to imitate various aspects (mainly external forms) of living organisms Many of these, such as the imitation of growing plant structures by osmotic swelling, are spectacular, but there is no evidence that any of them can throw light on the living phenomena which they imitate Curiously enough, he does not discuss the origin of the supreme characteristic of living matter, its organisation, at all This is admittedly the most difficult of all problems, but since Prof Beutner is not afraid of speculating he might have been expected to suggest, as others have done, a possible connexion between the organised structure of liquid crystals in a homogeneous fluid and that of protoplasm

An Introduction to Dermatology

(10th ed) By NORMAN WALKER, Kt , M D Edin , LL D , F R C P E , consulting physician to the Royal Infirmary, Edinburgh , and G H PERCIVAL, M D , Ph D Edin , F R C P E , physician for diseases of the skin to the Infirmary Edinburgh W Green and Son 1939 Pp 391 20s

IN its forty years of life Sir Norman Walker's introduction has become one of the classics of dermatology In the new edition he has been assisted by Dr G H Percival, and while the work retains its original characteristics, notably its readableness and its method of presentation, it has been brought thoroughly up to date

Traité de thérapeutic clinique

(2nd ed) By PAUL SAVY, professeur de clinique médicale à l université de Lyon Paris Masson et Cie 3 volumes Pp 2776 Frs 450

THIS work has the balance and thoroughness which only the care of one man can give Its plan is sound General considerations of each disease or symptom, with the pathological and anatomical basis, are first discussed , the therapeutics logically follow, though M Savy is too experienced a clinician to scorn the empirical All but the most recent therapeutic advances are included and the scope is international though references to the authors quoted would have given even greater authority The description of the evolution of the various therapeutic methods in the history of medicine and the quotations from the old masters are delightful The style is clear and the French easy to read Well known facts gain new significance and the forgotten principle is politely reimpressed by the French language, which has the power of transforming the dullest platitude into an eternal verity This is a work both to consult and enjoy

The Vaginal Diaphragm

Its Fitting and Use in Contraceptive Technique By LE MON CLARK, M S , M D , Chicago London Henry Kimpton 1939 Pp 107 9s

THIS is an excellent monograph, liberally illustrated Dr Le Mon Clark of Chicago knows his subject inside out but is no fanatic , he has wide sympathy with the patient and the advice he offers is full of good sense He has no great use for the more fancy types of diaphragm cap such as the Matrisalus, and confines himself to a description of two types of diaphragm, the one with a spirally coiled spring—*e g* , the Koromex—and the ordinary Dutch or Mensinga cap with a flat watch spring in the rim He points out that the former spring is flexible in two planes and is therefore unsuitable for use in women with relaxed pelvic floors or cystoceles or with long prominent cervices The watch spring can only be compressed laterally and cannot be bent in the other plane, and it is often effective in such cases However, in a fair proportion of women with large cystoceles a Dumas type of cap gives the better fitting Dr Clark is not in favour of using the smaller sizes of diaphragm for "capping" the cervix owing to the great risk of the patient misfitting these into the anterior fornix He advocates placing the diaphragm dome upwards His description of the technique of insertion, both with and without an inserter, is excellent In discussing jellies and creams to be used with the cap he takes the view, which seems to be general in America, that the spermicidal efficiency of the preparation is not of paramount importance He talks vaguely about "bland jellies" and does not appear to grasp the fact that these products may be highly spermicidal without being irritating to the vaginal mucosa He gives some sound advice to young couples about not delaying their first child too long

Textbook of Neuro-Anatomy and the Sense Organs

By O LARSELL, Ph D , professor of anatomy, University of Oregon medical school London D Appleton-Century Company 1939 Pp 343 25s

THIS book is intended primarily for medical students making their first survey of the anatomy of the nervous system, and it is admirably suited to this purpose Outstanding features from the comparative anatomy of the brain are mentioned and serve to link human neuro anatomy with zoological studies The functional interpretation of cell masses and fibre tracts in the light of human pathology, animal experiment and comparative anatomy is also outlined The chapters dealing with the proprioceptive apparatus and the cerebellum are particularly valuable as coming from an original worker in this field, and beginners will be helped by the figures showing the anatomical constitution of the long ascending pathways of the spinal cord

Illustrations of Regional Anatomy

(2nd ed) By E B JAMIESON, M D , senior demonstrator and lecturer in the anatomy department of the University of Edinburgh Edinburgh E and S Livingstone 1939 Section VI, Upper Limb (42 plates) 7*s* 6*d*. VII, Lower Limb (52 plates) 10*s* 6*d*

IN these new atlases the publishers have provided six score of additional colour blocks, so that the majority of the plates now carry many colours The result is as delightful as it is accurate The student will rejoice, and even the senior man wishing to refresh his memory may hum a merry tune as he studies the new Jamieson

Schafer's Essentials of Histology

(14th ed) Edited by H M CARLETON, M A , B Sc , D Phil Oxfd, university lecturer on histology , research fellow of New College, Oxford London Longmans, Green and Co Pp 618 16s

THE writer of an elementary textbook of histology undertakes a difficult task, for the ideal volume—one which will help beginners to help themselves—must bring together, not only the chief agreed facts of microscopic anatomy, but also the main points which are still controversial , at the same time it must indicate the physiological significance of the structures described Dr Carleton has set out to satisfy all these requirements, and he has undoubtedly succeeded in fulfilling the first But the controversial subjects should have been given more prominence, even though the book is for beginners It is by directing their attention to regions as yet incompletely charted that beginners are spurred to explore for themselves and to develop precision of observation and discrimination in evaluating different techniques. Dr Carleton also misses a few opportunities of pointing out the physiological significance of the facts he gives. For example, he mentions the experimental work of Langley and Anderson, in which they demonstrated that the central end of the severed vagus nerve passes into and ends within the superior cervical ganglion of the sympathetic, but says nothing of the bearing of this finding on the question of cholinergic endings.

Synopsis of Clinical Laboratory Methods

(2nd ed.) By W. E BRAY, B A., M D, professor of clinical pathology. University of Virginia; director of clinical laboratories, University of Virginia Hospital. London: Henry Kimpton. Pp. 408 18s.

THE second edition of this book presents clearly practical directions for clinical pathology, including bacteriology, hæmatology and biochemistry. The book is intended solely for the one-man pathologist, and as such will be useful. It is popular in America.

EARLY HISTORY OF BLOOD-TRANSFUSION

IN the first issue of a new medical periodical, Dr Cochran gives a brief outline of the history of blood-transfusion[1] In 1661, forty-five years after Harvey's discovery of the circulation of the blood, Richard Lower,[2] a London anatomist, performed the first successful blood-transfusion, uniting with a goose-quill an artery of a dog with a vein of another dog. He repeated his experiment before the Royal Society. In 1662 Jean-Baptiste Denis, using 9 oz of lamb's blood, performed the operation for the first time on a human being—a boy, aged 15, anæmic from repeated venesection for fever. Astonishing improvement is said to have taken place. On Nov 23, 1664, Lower and King performed their first transfusion on a man and used sheep's blood. The operation was performed repeatedly at meetings of the Royal Society before 1671, the object being to stave off impending insanity. Lower[2] wrote that "Harvey became pre-eminent by first demonstrating that blood circulated in the vessels inside the body. That this circulation could be extended outside the body was first discovered by me." Samuel Pepys met the patient on Nov. 30, 1667, and described him as "cracked a little in his head" and "the first sound man that ever had it tried in England, and but one we hear of in France." Lower was probably also the father of intravenous therapy, for he experimentally injected into the veins of living animals "various solutions of opiates, emetics, and kindred other medicines," besides wine and beer

Further details of the early history of blood-transfusion are available *from other sources* In 1667 Denis's Letter on the Transfusion of Blood was translated into English, but suppressed by the editor of the *Philosophical Transactions* In 1668 George Acton[3] suggested the transfusion of the blood of stags, eagles, and other long-living animals to prolong human life. In the same year Emilio Maria Manolessi published his "Relazione dell' Esperienze fatte in Inghilterra, Francia, ed Italia intorno alla . . . Trasfusione del Sangue," giving details not only of the English and French experiments but also of similar operations performed at Rome and Bologna. Blood-transfusion is also mentioned in Hermann Grube's "De Transplantatione Morborum Analysis nova" of 1674. G. A. Mercklin's "De Ortu et Occasu Transfusionis Sanguinis," published at Nuremberg in 1679, contains the earliest illustrations of blood-transfusion The frontispiece depicts a transfusion from animal to man and two scenes of transfusion from man to man by the veins of either the arms or the hands.

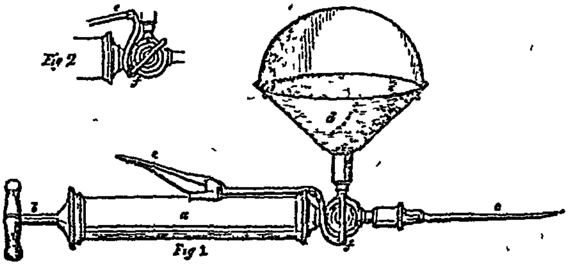


FIG. 1—The syringe with its pipe and funnel ready for use (*a*) the cylinder, (*b*) the piston, (*c*) the pipe, the extremity of which is introduced into the vein; (*d*) the funnel, (*e*) the lever, which acting on (*f*), the stop-cock, opens or closes the communication of the syringe with the funnel or pipe as may be required.

FIG 2—The stop-cock turned by the depression of the lever (*e*), shown in fig. 1

The astonishing fact is that the transfusion of sheep's blood was successful in the first two cases Subsequently, however, numerous fatalities led the Parisian court to forbid transfusions from animals to man, and in 1675 the Pope issued a special edict to ban it. Consequently the practice lay dormant for 150 years, until it was resuscitated by James Blundell (1790–1877) for post-partum hæmorrhage (see the memoir at the end of Ashwell's Practical Treatise on Parturition, London, 1828). It was he who discovered that blood from the same species was necessary for a safe transfusion. He has eleven successful transfusions to his credit. Severe reactions and occasional deaths led Prevost and Dumas in 1826 to suggest the use of defibrinated blood, but the first transfusion of such blood was done by Larsen in 1847 with an egg-beater.

In 1840, Samuel Lane,[4] lecturer on anatomy and surgery in St George's School at Hyde Park Corner, being called in to attend to a boy, aged 11, dying from hæmorrhage after a slight operation (Dieffenbach's) for squint, consulted Blundell concerning his *technique and experience of blood-transfusion and* proceeded to perform it on the boy with a syringe, tube, and funnel (see figure). About 10–12 oz. of blood was taken from "a stout healthy young woman," and "in the course of an hour or two the boy sat up in his bed and drank a glass of wine and water from his own hand."

An idea of the position of blood-transfusion in surgery about half a century later can be gained from Holmes and Hulke,[5] who said: "The name of Dr. Blundell is permanently associated with the operation of transfusion." They mentioned the transfusion of other substances—e.g., milk for hæmorrhage by Wagstaffe and, in America, sheep's blood for "phthisis." They also said that "Monsieur Roussel has proposed repeated transfusion of healthy blood as a remedy in mental disorders"—a harking back to Lowell in 1664. It was recognised that, for hæmorrhage, "in great emergencies water alone may be injected." Aveling's apparatus[6] for direct transfusion was said to be simple, whereas that of Roussel[7] was complicated.

---

[1] Cochran, G C, jun, *Brooklyn Hosp J.* January 1939, p. 52

[2] Lower, R, Treatise on the Heart, 1671

[3] Acton, G, Physical Reflections upon a Letter written by J. Denis to Monsieur de Montmort . . concerning a New Way of Curing sundry Diseases by Transfusion of Blood, London, 1668.

[4] Lane, S, *Lancet*, 1840–41, 1, 185.

[5] Holmes, T., and Hulke, J. W, A System of Surgery, 3rd ed, London, 1883, vol 1, p. 356.

[6] *Trans obstet Soc* May 4, 1874.

[7] Roussel, J., Transfusion of Human Blood, London, 1877

THE LANCET

LONDON SATURDAY, OCTOBER 7, 1939

CHEMOTHERAPY IN PNEUMONIA

SOME of our earlier comments on the treatment of pneumonia with M & B 693 have seemed to some unduly optimistic, but the constant stream of reports from world-wide sources—many of them admittedly inadequate, poorly documented or statistically unsound—now tell a story of success unrivalled since the early salvarsan days It seems, indeed, safe to predict that where "606" has saved its thousands "693" will save its tens of thousands The very multiplicity and diversity of the reports indicate some of the drug's assets—the ease and safety of its administration, and its cheapness and availability when compared with specific antiserum These allow clinical trials to be made in places where there is little opportunity for that close coöperation between clinician and laboratory worker which is so essential if serotherapy is to be given a fair chance, such as Lahore [1] and the Kolar gold mines [2] in India, and in Singapore [3] The results there are as satisfactory as those reported from the South African mines,[4] where, as in India, pneumonia takes a heavy toll of the industrialised native Thus a therapeutic control of the disease in the gold mining industry is likely to supplant the prophylactic method used by the late Sir SPENCER LISTER and his staff On the home front, the latest figures from Birmingham given by GAISFORD [5] are 400 treated cases of lobar pneumonia with a fatality-rate of 6 5 per cent , the rates for the two previous years being 21 and 20 per cent , and only 5 deaths among 199 patients in the economically important age group 20–50 The enthusiastic adoption of M & B 693 in the Scandinavian countries, more especially Norway, to which recent issues of *Nordisk Medicin* bear witness, is interesting because they have lately seen a drive in favour of the new antipneumococcus rabbit serum The paper in this issue by Dr ROMCKE and Dr VOGT, whose results closely parallel those from Birmingham, illustrates the value of pooling records from several centres, as was done in the report to the Therapeutic Trials Committee on the serum treatment of pneumonia five years ago The United States, which at first adopted a critical, and almost resentful, attitude to the new drug is slowly giving it a more cordial reception Lately CUTTS and his colleagues,[6] for example, have compared the response to serum and "sulfapyridine" in a small series, to the latter's advantage

Chemotherapy inevitably invites comparison with serum Besides the advantages of cheapness and convenience M & B 693 shows itself superior under conditions where serum gives poor results—in older patients, in advanced stages of the disease and in type III infections The resemblance of type III pneumococcus to the streptococcus seems to be reflected in its susceptibility to the sulphonamides, for both sulphanilamide and M & B 693 have been effective in type III lobar pneumonia; and they have reduced the fatality rate from some 40–50 per cent to the region of 10 per cent In this country type III pneumococcus pneumonia is fortunately rare, but the same cannot be said for type II infections, which in Glasgow, for instance, kill as many people as all other types together The success of Dr ANDERSON and his co workers with M & B 693 in 70 cases of type II pneumococcus pneumonia is therefore particularly welcome Their fatality-rate of 8 6 per cent , even allowing for a favourable age distribution, is less than half the rate for untreated cases , this is better than serum treatment can do, at about a tenth of the cost On the other hand, the results of chemotherapy in type I infections do not seem to be as good as with serum In pneumonia generally, both serum and M & B 693 shorten the course of the illness, but the patient seems to recover more slowly after the drug , neither serum nor drug has any appreciable effect on the rate of resolution or on the incidence of empyema

On the debit side is the toxicity of M & B 693 Gastric upsets in some degree are met with in 30–50 per cent of adult patients, though they may often be allayed by omitting one or two doses of the drug, by giving the tablets crushed in milk or fruit juice, or in severer cases by injecting the soluble sodium salt intramuscularly (33 per cent solution), intravenously (5 p c) or rectally (2 p c) Drug rashes and drug fever appear in a small proportion of cases, methæmoglobinæmia is probably more common than clinical or simple spectroscopic examination suggests, and transitory hæmaturia has been observed in as many as a third of the patients in some series The severer complications—agranulocytosis and hæmolytic anæmia—should rarely arise in an acute and limited infection like pneumonia, for the drug is unlikely to benefit any patient who does not respond within the first two or three days of treatment

What of the future ? In the treatment of pneumonia M & B 693, or perhaps something even better, has come to stay , but there is still a 15–25 per cent mortality among patients over fifty Would drug plus serum be effective in such cases ? And what of the appalling loss of life from bronchopneumonia in early childhood ? Further, as Professor BROWNING pointed out at the Aberdeen meeting of the British Medical Association, there is still no certainty as to how the drug acts Obviously much remains to be done by both clinician and experimenter

---

[1] Chand, A , et al., *Ind med Gaz* 1939, 74 257
[2] Caplan A *Ibid*, p 451
[3] Monteiro F S *J Malaya Br Brit med Ass* 1939, 3, 51
[4] See *Lancet* 1939, 1 359 and 380
[5] Gaisford W F , *Proc R Soc Med* 1939 32, 1070
[6] Cutts, M., et al , *New Eng J Med* 1939 221, 203

AEROPLANE NOISE AND DEAFNESS

The occupational deafness of boilermakers and of workers in similar noisy surroundings has long been recognised. The noise produced by certain types of multi-engined aircraft has been measured and found to exceed that in boilermakers' shops, and engine-noise is likely to become still greater with further increases of horse-power. It has therefore become important to study the effects of these sounds on the hearing of aviators and those who test and tune their machines, and a useful preliminary survey has been made by Dickson, Ewing and Littler.[1]

Laboratory experiments have shown that loud tones at intensities up to 120 decibels above the normal threshold, and with frequencies between C^1 and C^4, cause temporary diminution of acuity over a range of frequencies extending from the level of the fatiguing tone to about an octave higher. Audiograms of cases of deafness in members of the Royal Air Force invariably show a bilateral loss of acuity confined to frequencies above C^3, and usually most definite in the region of C^4. Analysis, however, of the sounds emitted by aeroplanes shows that frequencies which give the highest relative loudness are invariably at the lower end of the scale; so that, in the case of aeroplane deafness, loss of acuity at the upper end of the scale is caused by vibrations of high intensity at the lower end. This loss at the upper end of the scale results in an inability to recognise consonants; these patients are therefore liable to make mistakes in hearing speech, but as their hearing over the rest of the scale is unimpaired they are not always aware of their deafness. The deafness is probably progressive as long as the patient continues in his noisy occupation, and aviators' deafness must be considered to threaten a serious and lifelong disability.

Good insulation for sounds of low frequency is particularly difficult to obtain. V. F. Lambert, who collaborated with Wing-Commander Dickson and his colleagues in examining various methods of protecting the ears, remarks that finding a method of completely occluding the meatus seemed on first consideration to be quite simple, but in practice this was not the case. The rigid bony meatus should be easy to occlude, but unfortunately it is very sensitive and intolerant. The cartilaginous meatus is more tolerant, but it is mobile and the movements of the jaw are readily transmitted to it. The substance to be used as a plug must be soft enough to mould into position and to fit snugly despite the movements of the jaw. Lambert found dental stent too hard to fit tightly during the jaw movements; neither Plasticine nor a heavy fluid in a soft rubber container proved suitable, but a plug of cotton-wool smeared with Vaseline was quickly and safely applied and efficient. He says that the usual flying helmet, firmly strapped so that the telephones and their holders closely seal the ears, gives good protection, and this is confirmed by audiograms of three pilots with many hours' flying to their credit, who wore helmets and showed no deafness. Protection of the ears appears to diminish, if not to eliminate, the risk of impairment of auditory acuity, and seeing that there is a real danger of permanent deafness if this precaution is neglected, steps should be taken to ensure that all pilots while flying and mechanics while tuning engines use either an effective ear plug or a carefully fitted helmet.

TREATMENT FOR BED-WETTING

Some of our country towns have lately come to have a Continental look, for every morning every window is filled with bedding hung out to air in the sunshine. The scene is cheerful, but the householders are depressed; for the habit of bed-wetting, in guests who are likely to stay a long time, is a serious tax on hospitality, especially where the hosts have no large reserve of bed-linen. Somewhat unexpectedly, enuresis has proved to be one of the major menaces to the comfortable disposition of evacuated urban children, and, though it should diminish as the children begin to feel themselves at home, its very existence defers this domestication. It alienates affection which may be the child's main need. Hence even the most superficial treatment will be legitimate if it breaks the vicious circle by removing the symptom, and at a time of widespread domestic crisis we make no apology for offering a few dogmatic opinions and recalling some of the traditional remedies.

If a child over three years old cannot hold his water, the child and the water should be examined. After such general disorders as mental defect and hypothyroidism have been excluded, a search should be made for irritable foci in the genitalia, particularly balanitis, vulvitis, and meatal ulceration. Urinary examination is important chiefly for the discovery of pyuria—a common cause, or clue to the cause, of acquired enuresis—and a drop of uncentrifuged urine should therefore be looked at under the microscope. In the absence of pus and sugar it may be discovered that the urine is abnormally acid or alkaline, and potassium citrate or acid sodium phosphate may be accordingly prescribed; which if it does no good will at least do no harm. As a rule, the result of these investigations will be nothing more than the conclusion that one has to deal with functional enuresis. When this decision has been made there is much to be said for turning the patient over to a pædiatric psychotherapist; but such an one is not to be found in every hedgerow, and in his absence good results can often be got by simple means. Dr. Hector Cameron has said that "functional enuresis may be cured by anyone who is confident of his own powers to achieve success and who can communicate that confidence to the child." The parent, however, must be made to share the doctor's confidence and must be additionally assiduous; so it is to be hoped that foster-parents will be less likely than indulgent mothers to resign themselves to the child's "weak bladder," or to his being "too small" or "too delicate" to be trained. If the parent or guardian believes that (in Mr. Churchill's inspiring phrase) "we have only to persevere to conquer," she will communicate her belief. She will see also that the child has no fluids to drink after five o'clock, that he empties his bladder before he gets into bed, and that he is roused to void completely again at a later hour, she will take the trouble to discover whether fear of the dark prevents him from getting up at night, and will provide a night-light if necessary, and finally she will abjure unkindness For enuresis, though sometimes a conscious, is rarely a voluntary act, and punishment is out of place The Star Chamber methods of yesterday have given way to the "star chart," a weekly or monthly calendar on which the child fixes an adhesive gold star (or merely a red cross) in celebration of every dry night This is often a great help to children who are intelligent and keen to be cured, they (not the parent) should mark the chart, and the emphasis, as will be seen, is on success, not on failure

---

[1] Dickson, E. D. D., Ewing, A. W. G., and Littler, T. S., *J. Laryng.* September, 1939, p. 531

Many patients will be much improved or cured by these simple methods Some however need drugs, of which many have been tried and recommended The success of these may be guessed from their number, but the fact remains that few cases are resistant to continued treatment with ephedrine and atropine in really adequate doses Ephedrine sulphate is given at bed time, gr ¼ to a child of three to six years, and gr ½ to an older child, it is explained that this may not be a big enough dose, and that more may be given if it is ineffective If after a week's trial there is no improvement, the younger child's dose is increased by gr ¼ and the older by gr ½ This can be repeated until 2 or 3 grains are being taken (by the older child) or until enuresis ceases The highest dose that is reached is maintained for a fortnight and then stopped, if enuresis recurs it may be repeated Occasionally restlessness, vomiting, or headache indicate that the dose should be reduced, but success is usually attained without toxic symptoms Tincture of belladonna is useful, particularly in cases where the child is under close observation and its administration can be pushed until it produces a dry mouth or dilated pupils It is given in amounts of 10 minims for the younger child, and 15 minims for the older, half an hour before bed-time The dose is increased weekly by 5 minims until enuresis stops, or until symptoms appear Some physicians advise giving belladonna during the day too, in rather smaller doses

SIGNIFICANCE OF THE GIANT CELL

On another page Professor HADFIELD describes a condition of regional ileitis which shows under the microscope the picture of lymphadenoid hyperplasia with non caseating giant cell systems in the submucosa and the regional lymph nodes Scattered irregularly in the reacting lymphadenoid tissue are a number of germinal centres consisting of proliferating endothelial cells with weakly staining nuclei and containing one or more giant cells of the Langhans type At first sight the histologist would say miliary tuberculosis, but there was no evidence of caseation, necrosis or gross destruction of surrounding tissues, and Hadfield failed to find tubercle bacilli The spontaneous retrogression and inconspicuous healing of the centres reminds him of Boeck's sarcoidosis, a disease which has long puzzled pathologists The giant cell is a plaguy fellow, and there is no knowing what he will do, even in proved tuberculosis, and especially in lesions of lymphadenoid tissue Using vital staining methods, Doan, Sabin and Fortenes have classified[1] the giant cells seen in tuberculosis into two groups those which they call the epithelioid giant cells, with a uniform amitotic division and a rosette of fine vacuoles, and foreign-body giant cells, varying widely in size and structure and with no constant cytological pattern Vital staining methods are not open to the clinical pathologist who studies the tuberculous lesions of man, but it is fairly certain that the Langhans type fits into the first group of the Doan-Sabin-Fortenes classification This cell is associated with epithelioid proliferation—in fact, the epithelioid cells are its precursor—and is regarded as the true tuberculous giant cell Looked at thus, the giant cell of Hadfield's regional ileitis may fairly be regarded as the genuine article—it is of Langhans type and is associated with epithelioid proliferation Shall the facts that no tubercle bacilli have been found and that no caseation follows put it out of court? Actually the histological picture so clearly described by Professor Hadfield resembles closely the lesion produced by the inoculation of dead tubercle bacilli into animal tissues Doan, Sabin and Fortenes found that only certain portions of the lipoid fraction of the tubercle bacillus produce the epithelioid giant cell It is by no means impossible that regional ileitis may owe its features to the passage of dead bacilli or their products from the intestinal tract into the submucosa and lymphadenoid tissue

WOMEN DOCTORS IN THE ARMY

ON Sept 16 we suggested that the conditions of employment of women in the Services should be clearly defined and not left in the state of vague uncertainty from which they suffered in the last war We are glad to note that the Army Council has now published[2] a scheme for women medical officers attached to the Royal Army Medical Corps with a military status The conditions though they do not grant the right to hold a commission, are otherwise fair and equitable Women may now receive advancement in relative rank as for a R A M C officer in war, and will receive the same pay and allowances as a R A M C officer at single rate except that the ration allowance will be four fifths of that for a man and there will be modifications in the uniform allowance For the first time they will be officially allowed to wear ranking badges the Royal Air Force permitted this in the last war, but it has never been sanctioned by the Army Council Their uniform will also include the badge of the Corps but without the motto *in arduis fidelis*—no doubt an excellent compromise though it might have been more tactful *to allow the motto and merely remove the serpent* Women on the same terms as men will in addition be eligible for employment as civilian medical practitioners either whole time or part time All requests for personnel will be made by the War Office through the B M A central emergency committee.

---

[1] J exp Med 1930 (Suppl no 3 p 49

[2] Brit med J Sept. 30 1939, supp, p 191

ANNOTATIONS

A TRUE LIST OF STUDENTS

For the first time in the history of medicine we have a true and accurate list of the students commencing the medical curriculum during a calendar year. It will be remembered that two years ago the General Medical Council decided to give up direct registration and simply to issue a list compiled from returns made by the deans of all the preclinical schools in the country The register, a copy[1] of which we have just received, consists of an alphabetical list of students admitted for the first time to the medical curriculum during the twelve months ended May 31, 1939 It contains the names of 1735 medical and 316 dental students and although accurate is not complete, for owing to some unstated technical difficulty the numbers are missing in the case of such important schools as Liverpool, Aberdeen, Belfast, and University College, Dublin. Hence the list is short by some 400 or even 500 names. In a tabular statement preceding the list the register gives (1) the number of students who passed each of the various recognised preliminary examinations in general education, of which there were 70 varieties, and (2) their distribution over the so-called premedical examinations conducted or recognised by one of 24 licensing bodies Among the premedical examinations the University of London easily holds the first place with 507 medical students, Edinburgh follows with 202, Cambridge with 172, Glasgow 97, Oxford 93, National University of Ireland 92, English Conjoint Board 83, Irish Conjoint Board 79, Durham 74, and Leeds and Manchester each 63, no other school totalling more than 50 entries. The list is printed on fine white paper with such an air of finality that it cannot have been in the minds of those who designed it that these new students would now be scattered widely over the country, doing their work under novel and distracting conditions. When the initial unsettlement is past they should derive advantage from the variety of experience which is likely to come their way. Some of them may be regretting their withdrawal from the military service which will be the lot of their fellow students in other faculties, but they should be supported by the conviction that they are preparing for a service to the community which is essential to its welfare and can be rendered by no other class of citizen. There is certainly something epic about this new register.

TENDON SUTURE

Couch[2] lays down four principles that govern success in tendon suture, and, without publishing results, makes the bold statement that a properly repaired tendon will yield "practically 100 per cent. function." Most surgeons have to admit that perfect function is seen only in the exceptional case Nevertheless, Couch's principles are sound and deserve restatement In the presence of a cut tendon, he says, the surgeon should (1) recognise it, (2) repair it, (3) repair it so that it stays repaired, and (4) make it move. Recognition of a cut tendon is the primary and essential duty of all who treat wounds, and the smaller wounds should be more suspect that the larger It is remarkable how often the wound is treated without any attempt to test tendon function To repair so that it stays repaired is the greatest part of the battle Couch rightly condemns catgut chiefly because of its poor tensile strength, but also because of the intense tissue reaction essential to its absorption, which leads to the deposition of fibrous tissue about the tendon with subsequent adhesion. He uses silk, No 2 braided, for twisted surgical silk is not strong enough Without results it is impossible to adjudge between primary suture, which Couch advocates, and secondary suture, which many surgeons including Iselin[3] are convinced is more satisfactory Movement is essential, both before and after operation, and this can only be carried out if the repair is sound Furthermore, to repair a tendon if the joints are stiff is obvious folly.

JUDGMENT OF RELATIVE POSITIONS

A PRELIMINARY communication by Wing-Commander Livingston[4] describes his investigations with two pieces of apparatus designed to analyse what he believes to be the sensations directly involved in the judgment of relative position There is a factor which seems to account for certain differences in the apportioning of space and the selectivity for detail in any scene; this may show considerable variation in strength and induce as it were positive and negative phases So strong are these phases that they can be projected into consciousness and become the precursors of a neurosis; their influence may actually be carried into calculations which involve spatial judgment.

Livingston's paper gives particular attention to certain features of binocular vision which appear to be closely associated with depth perception, a term he uses to describe the highest stratum of spatial recognition. His rotating depth-perception apparatus is based on Helmholtz's three-pin test, it is however made so that the pins may be rotated in parallel through the full range of the perimeter. The pins are 1 mm thick and are blacked; the background is flat grey and the illumination entirely without shadows The observer's head is fixed in a head-rest and clamped. The distance between the two fixed pins and the observer is 11 ft and the range of movement of the centre pin is 240 mm. Attached to the centre pin, upon the adjustment of which the judgments are made, is a stylo-pen which runs over graph-paper on a moving drum at a standard speed; all movements carried out in the process of resetting the centre pin are thus recorded, and not merely the final position. The points selected for adjusting the centre pin before each test are + 4, − 8, + 5, and − 10 cm. and zero; and the four selected positions are vertical, horizontal and 15° either side of the horizontal. The examiner, having set the centre pin, asks the observer to move it back by means of a cord to a position at which he judges all three pins are equidistant from him. There are twenty separate tests to each graphic record.

It is believed by this procedure that two visual characters are assessed: first the sensitivity of the retinæ to stimulation at disparate points; and secondly the psycho-visual response to such stimuli; this latter calls for interpretation varying in acuteness according to the rotated position of the pins In the vertical position assessment is under normal conditions, but in the horizontal it is impossible to analyse the results accurately, the graphic record differing greatly between individuals When the pins are moved 15° on either side of the horizontal there is an immediate return of the power to analyse depth, a remarkable finding considering that only a very small binocular factor has actually been regained

---

[1] Register of Medical Students and of Dental Students admitted to schools of medicine and to schools of dentistry in the academical year 1938–39 London: published for the General Medical Council by Constable and Co. Pp 81.

[2] Couch, J. H., *Canad med Ass J.* July, 1939.

[3] Iselin, M, Chirurgie de la main, Paris

[4] Livingston, P. C., *Brit J. Ophthal* 1939, 23, 540.

There is a third factor necessary to complete the accurate assessment of depth, as well as disparate retinal point stimulation and unrestricted binocular vision, this is demonstrated by the rotating stereogram and pictures The charts for use in this apparatus are composed of sections showing dissimilar objects and others in which are designs for stereoscopic perception It seems that most observers experience alternate vision, the quality of which shows marked variations, some are equally balanced, while others are irregular, slow or rapid Strong mastery of one eye and a perfectly balanced macular reception tend to negative the faculty of depth perception Livingston comments that these results suggest that the comprehension of depth depends upon the presence of alternation and its character and rhythm, and that in predominantly binocular vision, or with perfectly even macular reception, the essential parallactic effect brought about by alternation is missing and accurate analysis of relative position is faulty

By means of the rotating stereogram, the stereoscopic sense is first developed by the charts showing dissimilar objects and the macular reception rate adjusted until the alternation is rapid and of equal periodicity The stereoscopic section of the charts is now worked upon and depth appreciation is established The results appear to support the contention that alternation is essential for complete and accurate spatial orientation

BLINDNESS IN INDIA

THE blind in India today are estimated at one and a half million, and the partially blind at three million At least half of this blindness is preventable—most of it is due to such preventable or at any rate remediable conditions as infantile ophthalmia, smallpox and trachoma The difficulties to be surmounted are greatest in rural districts In the large towns patients can get adequate treatment at hospitals, but in the smaller towns and villages they too often fall into the hands of quacks Other factors in the Indian social and economic system prevent proper organisation of the education and treatment of the blind Many of the population cannot read or write, and therefore the principles of ophthalmic hygiene and directions for obtaining treatment cannot reach them unless they are broadcast, an expensive and difficult thing to arrange Education by means of Braille books is complicated by the number of languages and dialects spoken The National Institute for the Blind suggests that books should be written in two basic codes, one for languages of Aryan origin and the other for those of Dravidian origin Finally, the rigid caste system and the fatalistic attitude of the average oriental to disease discourage attempts to alleviate the lot of the blind In 1931 the National Institute for the Blind addressed a memorial to the Secretary of State for India included in a recent booklet,[1] asking for Government support for their efforts This was not granted owing to the financial stringency of the time, nor did the local governments favour the proposal to form an advisory committee to organise the welfare of the blind and the prevention of blindness Since 1932 the Institute has coöperated with the Indian Red Cross in financing lectures on blindness prevention for school teachers, in the hope that they will hand on their knowledge to the children and so influence a wide circle of parents and friends

Pamphlets have been issued to the general public and a few broadcasts have been arranged for the illiterate The work done, on a scale limited through lack of funds, by the several relief organisations in India, both in propaganda and in providing travelling hospitals, camps and dispensaries, has demonstrated what could be done with adequate financial backing The immensity of the need places it beyond the scope of voluntary effort, and no doubt in time backing will have to come from the Government

---

[1] Blindness in India 1939 London National Institute for the Blind Pp 24

EXPERIMENTAL TREATMENT OF TUMOURS

THE fillip given to the chemotherapy of bacterial disease by the discovery of sulphanilamide is being followed by a fresh attack on the chemical treatment of cancer Several years ago Haddow[1] discovered the curious fact, since confirmed, that the chemical carcinogens themselves are able to inhibit the growth of transplanted tumours This observation finds a parallel in the regression of spontaneous growths and their metastases when treated with radium and X rays, physical agents which are known also to cause cancer In a previous issue we called attention to the success of Strong[2] in bringing about liquefaction and regression of spontaneous mouse tumours in 6 out of 25 animals by feeding them with heptyl aldehyde An analysis by Andervont and Shimkin, of the manner in which Coley's fluid produces regression, has been in progress for some years, and they have recently[3] come to the conclusion that the bacterial filtrate acts in an entirely non specific way by lowering the ascorbic acid content of the tumour, thus damaging its fragile capillaries so that hæmorrhages follow The hæmorrhage brings about anæmic necrosis, stimulates macrophage invasion of the tumour and finally scar formation By increasing the ascorbic acid content by injection, the inhibitory *action of the filtrate is opposed*

One of the latest attempts to inhibit tumour growth, reported by Floyd Turner,[4] has been made with non carcinogenic derivatives of phenanthrene on the supposition that some of these substances resemble colchicine in chemical structure and pharmacological action Turner maintains that although colchicine does not arrest tumour growth, mitosis is without doubt affected and therefore some allied substance might be found which would stop cell division effectively Seventy five compounds most *of which were newly synthesised by Small and others* for a different purpose were accordingly tested against transplanted and spontaneous tumours The transplantable tumour used was S 37 inoculated intradermally Under these circumstances its natural regression rate is 12 per cent, whereas after a single intraperitoneal dose of one of the tested substances, dihydrothebainone hydrochloride, Turner obtained regression in 70 per cent of mice—a striking increase Since human cancer is not a transplanted but a spontaneous growth he very properly followed his *initial success by tests on mice bearing spontaneous* mammary carcinomas Unfortunately, [illegible] regression followed the trial of 15 different compounds

---

[1] Haddow, A *Nature Lond* 1935, 136, [illegible]
[2] Strong L C *Lancet* 1935, 1 503
[3] Andervont H B and Shimkin M B, *Amer J Cancer* 1939 36 451
[4] Turner F C *Publ Hlth Rep, Wash* July 14, 1939, p [illegible]

We are frequently reminded in dealing with Nature that it is well not to be bound too rigidly by logic It is wise, however, to understand one's position and to know when one is following and when departing from logic. The premise that colchicine affects mitosis is undoubtedly true It is equally true that it affects mitosis of normal as well as malignant cells; there is no specificity about its action. Do we want a therapeutic agent that will prevent normal cell-replacement, repair, and the adaptation to slight changes in function that go on all through adult life? Unless specificity is attained, or action is almost instantaneous through a limited number of doses, we should be risking impairment of all these defences.

A LETHAL ORGANISM

AT a time when medical expediency occupies the minds of most doctors, epidemics of illness are a subject of more urgent thought Guthrie and Montgomery's account of an outbreak of food-poisoning in Glasgow[1] forces the reader to take stock of his knowledge of the diseases caused by the salmonella group of organisms.

The outbreak had few of the features so familiar to practitioners. All but 1 of the patients were infants under two years of age The infecting agent in 27 of the 28 children was *Bacterium enteritidis* or Gaertner's bacillus and in the odd instance it was *Bact enteritidis* var. *dublin* Most of the patients were probably infected from the same source, but at least 3 contracted the illness in widely separated homes and within a few months of each other (That sporadic infections with salmonella are common is well illustrated by Smith[2] who found that 26 out of 46 patients were entirely unrelated.) The clinical features of the outbreak were, to say the least, unusual. Of the 28 children 15 died and in these the illness was a septicæmia almost from the start Green stools, vomiting, and convulsions were the common signs of infection, but the intestinal lesions were often relatively trivial and there was no blood or pus in the fæces Purulent meningitis was found in the *dublin* case and in 10 of the others The tendency for *Bact. enteritidis* var. *dublin* to cause meningitis is well known, but meningitis due to Gaertner's bacillus is a rarity and it is worth recalling that even in the largest series of cases of salmonella meningitis[3] described, only 5 of the 35 organisms were unequivocally identified. In the Glasgow epidemic lumbar puncture gave the organism in abundance in 3 of the children, and in 12 others the bacillus was recovered from the meninges post mortem. Another point of interest was that 9 of the infants had definite cholecystitis—an appreciable number when compared with a control group of 5000 autopsies performed at the same hospital in which no other instance of cholecystitis was recorded. The claim that this association of enteritis, cholecystitis, and meningitis is unique is probably valid. One has to remember that when the usual equilibrium between the host's resistance and the invasive power of the organism is upset, then the familiar clinical picture, which is the index of that equilibrium, will also be lost.

As in many other salmonella epidemics no definite source of the disease was found. There has been much accurate and painstaking work to identify the types of salmonella bacilli and already about fifty are described in the larger textbooks But there is still much to learn about the epidemiology of food poisoning We know that beef, milk, and eggs are foods to suspect in an outbreak and that rats, mice, and men may also play a part as carriers. It is, however, a significant commentary on the state of our knowledge of the epidemiology of this group of illnesses that the present outbreak ceased only when the sick-nursery which had housed most of the children was closed.

TRAFFIC IN OPIUM AND DANGEROUS DRUGS

THE advisory committee on traffic in opium and other dangerous drugs has published an analytical survey of the annual reports received from 49 sovereign states and some 80 colonies or dependencies for the year 1937 on world manufacture and trade in narcotics. The report covers 44 pages and is followed by 16 annexes, bristling with statistics In the United States addiction to marihuana (Indian hemp) continues to be a serious problem; the drug has been seized in 37 out of the 48 states and it is the favourite drug of addiction in Cuba The prevalence of addiction to codeine in Canada is noted, and the use of smoking opium for hypodermic injection is encountered on the Pacific coast Heroin made its first appearance in Vancouver in 1937. In Hong-Kong a campaign against heroin pills resulted in some 3500 flats being visited and nearly four million pills confiscated In the Netherlands Indies, morphine and heroin injections are superseding the opium pipe. In Shanghai it appears to be a common practice to smoke heroin mixed with tobacco either in a pipe or cigarette The municipal authorities in Shanghai have come to the conclusion that addiction will never be eradicated by direct action nor even by a system of registration. and that "the only practical solution lies in the gradual suppression of opium at its source of origin" It is interesting to learn that in India poppy cultivation has ceased in the Punjab for the production of opium, though cultivation of 914 hectares is licensed for poppy heads. The quantity of raw opium produced in India in 1937 is given as 36,852 kg, with some 11 per cent. morphine. The total consumption of excise opium in British India for all purposes, medical and non-medical, in 1937 was 158,049 kg. or 0·62 g per head There have been large numbers of applications to the government of India for transhipments of Iranian opium destined for the Far East In Burma, at 112 of the 123 opium shops the raw drug is sold directly by the resident excise officer, a government official. As regards control of illicit traffic, it is reported from Hong-Kong that fines and imprisonment appeared to make no impression, the place is flooded with illicit prepared opium and the supply of Chinese and Iranian raw opium shows no signs of diminution. The remark is general that shortness of supplies leads to high prices and high prices lead to adulteration.

OSSEOUS DYSTROPHY FOLLOWING ICTERUS NEONATORUM

IN our columns last February Robson and Todd[1] described a case of fibrocystic disease of bone with skin pigmentation and endocrine dysfunction. In the correspondence which followed Professor Leonard Parsons referred to Dr. Frances Braid's case, probably the first record of such a condition in a male Dr. Braid[2] has now given us a full account of this case followed from birth to ten years, together with a second case, this time a girl Albright[3] and his collaborators have described seven more patients

---

[1] Guthrie, K. J, and Montgomery, G L, *J. Path Bact.* September, 1939, p 393.
[2] Smith, J, *J. Hyg Camb* 1933, 33, 224.
[3] Bahrenburg, J H, and Ecker, E. E, *J. infect Dis* 1937, 60, 81

[1] Robson, K., and Todd, J. W, *Lancet*, 1939, 1, 377.
[2] Braid, F, *Arch. Dis Childh* September, 1939, p 181.

The features of the syndrome are extensive osseous dystrophy (suggesting fibrocystic disease) either generalised or unilateral, pigmentation of the skin, and, in girls, precocious sexual development Though the clinical picture resembles hyperparathyroidism, there is no negative calcium balance, and when the neck has been explored no parathyroid tumours have been found The peculiar interest of Dr Braid's patients comes from the fact that both children started life with severe icterus neonatorum, bleeding, and later putty coloured stools Both were saved by the administration of whole blood intramuscularly Later both developed pigmentation of the skin, and when about two years old both began to have a series of spontaneous fractures, with consequent deformities X rays showed generalised involvement of bones, with a picture suggesting fibrocystic disease When two and a half years old, the girl had a menstrual period and enlargement of the breasts

Two other cases in the literature began with icterus gravis—namely, those of McCune and Bruch[4] and of Summerfeldt and Brown This is a high incidence of icterus gravis, in a very rare condition, and it has led Dr Braid to think that it is something more than a coincidence The icterus gravis, she suggests, has caused impairment of the liver function and consequent bone dystrophy In support of this thesis she quotes some interesting experimental and clinical evidence The experimental evidence is as follows Buchbinder and Kern[5] found that 60 to 70 days after ligation of the common bile duct in puppies, there was "a wide grade rarefaction and cortical thinning" of bones One animal developed bilateral cysts of bones These changes occurred almost exclusively in growing animals Greaves and Schmidt[6] also showed that rachitic rats were far less easily cured by vitamin D if their bile ducts were tied or their liver function otherwise injured An important piece of clinical evidence is that of Gerstenberger,[7] who described as "hepatic rickets" a condition of rickets associated in three children with cirrhosis of the liver The disease had developed in spite of adequate antirachitic diet and did not respond to full doses of cod liver oil or the mercury-vapour lamp

In her own cases Dr Braid investigated both the calcium and phosphorus metabolism and the liver function Blood levels of calcium and phosphorus were normal, there was a positive calcium balance, and the blood phosphatase was high Liver function was more difficult to investigate In the child of two and a half the tests were inconclusive apart from a possible excess of urinary urobilinogen In the boy of ten an excess of urinary urobilinogen had been detected since he was six years of age The total blood protein was first noted when he was two, it was then lower than normal, and it became progressively lower, the globulin being chiefly affected The ratio between urea and amino acid nitrogen in the blood was upset, indicating a diminished capacity to manufacture urea The blood uric acid was high as also was the urinary output, indicating a diminished capacity to destroy uric acid The glucose tolerance test showed an impaired capacity to utilise sugar Both cases showed a lower level of vitamins in the blood than normal On this evidence Dr Braid suggests that the bone dystrophy is due to some impairment of a function of the liver, possibly a mechanism concerned with the storage and utilisation of vitamins

POLIOMYELITIS IN SCHOOLS

THOUGH poliomyelitis is uncommon in residential schools no disease causes more anxiety and difficulty in them Dr R E Smith, of Rugby School, has therefore done well to review[1] the more important outbreaks of recent years and the lessons to be learnt Judging by notifications, he says, the disease appears to be on the increase, but it is recognised that notification in this country has been so faulty that comparison of one year's return with another tells us little, and in districts where all notifications are followed by search additional cases are always brought to light At present it seems to be uncertain whether semi closed communities are less or more liable to poliomyelitis than open communities, the incidence in them appears to be very low, but the outbreaks, especially in preparatory schools are sometimes large The question that chiefly interests the school medical officer is—what advice should he give the headmaster when poliomyelitis appears among the staff or pupils? Smith believes that when only one case is discovered the school should as a rule continue its work, all *parents being informed and direct contacts being kept* under observation When two or more cases appear together the same procedure should be followed, but parents should be "given the right" to remove their children if adequate isolation at home is possible If there are any secondary cases "the parents must be given the right and take the responsibility for removing their sons or daughters, but they must fully understand that they are removing their son from an infectious atmosphere, that the chance of his being infectious, whether as an abortive or a paralytic case is greater than the chance of his developing paralysis even if he stays at school This makes it essential that *he should be isolated in transit and at home*" A full three weeks' quarantine should be enforced and the home doctor and home medical officer of health should be notified The risk of dissemination of the disease through controlled dispersal is, in Smith's opinion, theoretical rather than substantial he cites experiences in the Felsted, Stowe and Wellington outbreaks in support of this view If this is true, however, does it not follow that the school should encourage—rather than merely permit—the removal of children as soon as secondary cases have arisen? For the risk of remaining in the closed community is by no means negligible

We regret to announce the death in Edinburgh on Monday last of Dr JOHN DIXON COMRIE physician to the Royal Infirmary and vice-president of the Edinburgh Royal College of Physicians Dr Comrie, who was in his 69th year, was well known for his studies of the history of medicine from the time of Hippocrates

For the present THE LANCET *continues to be printed at Aylesbury An office has now been opened at* 26 *Temple Street, Aylesbury and the Editor can be addressed by letter or telephone (Aylesbury 315) The London office remains open at 7 Adam Street Adelphi W C 2 telephone Temple Bar, 7228/9*

---

[1] Smith R E *Guy's Hosp Rep* 1939 89 139

[3] Albright F Butler A M, Hampton A O and Smith P *New Engl J Med* 1937, 216 p 727

[4] McCune D J, and Bruch H *Amer J Dis Child* 1937 54 1

[5] Buchbinder W C, Kern R *Amer J Physiol* 1927, 80 273

[6] Greaves J D and Schmidt C L A, *Univ Calif Publ Physiol* 1934 8 49

[7] Gerstenberger H J *Ztschr Kinderheilk* 1933 56, 217

THE NEW ENDOCRINOLOGY

A series of articles by Prof E. C Dodds, F R.C P., *director of the Courtauld institute of biochemistry at the Middlesex Hospital, based on lectures delivered at the British Postgraduate Medical School*

In these articles I shall try to summarise present views on the endocrine system At first sight this task may appear relatively simple, for information is available in a steady flood But unfortunately many of the observations are unconnected, unconfirmed, or (worse still) contradictory. Hence the general reader may easily go astray unless he has guidance An additional source of difficulty is that the subject advances simultaneously on any number of fronts For example the amateur endocrinologist may be plunged into experimental physiology—such as the practical study of the relationship of the posterior lobe, the pituitary stalk and the base of the brain to diabetes insipidus—or in dealing with the cortical hormones he may find himself bewildered among the uninterpretable terminology of the sterol chemists

In this series I shall write only on the more modern aspects, and leave aside hormones like insulin, adrenaline, and parathyroid, which have often been reviewed.

I—THE PITUITARY

The determining factor in endocrinology is a gradual recognition of the importance of the anterior lobe of the pituitary The fact that this gland controls or regulates the functions of the other endocrine glands has been proved by studying the effects of hypophysectomy, which produces immediate changes in the gonads, suprarenal cortex, and thyroid, and also (it is said) in the parathyroid and islands of Langerhans, besides causing cessation of growth Fig 1 is intended to give a comprehensive view of the actions of the anterior lobe of the pituitary on other glands and internal secretions It will be seen that the secretions of these glands are in a way controlled by the anterior lobe, and the following controlling hormones have now been shown to emanate from this body

1. The growth hormone
2. The gonadotrophic hormone
3. The thyrotrophic hormone
4. The adrenotrophic hormone
5. The lactation hormone (prolactin)
6. The trophic hormones—the pancreatic hormones (islands of Langerhans) and the parathyrotrophic hormones

In the first place it must be pointed out that these substances have not been isolated as chemical individuals, although they have been separated from each other In general they are of a protein character and their activity can be destroyed readily by most of the methods which break up proteins The molecule appears to contain a considerable proportion of carbo hydrate and they appear to be glycoproteins They differ from ordinary proteins in a number of other precipitation reactions; for example, they are not precipitated by concentrations of salicylsulphonic acid which precipitate other proteins

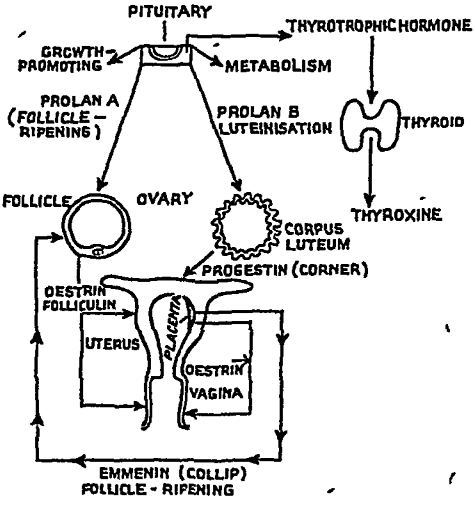


Fig 1—Interaction of the sex hormones

THE GROWTH HORMONE

One of the pituitary substances, when administered to immature animals, accelerates their rate of growth It will not, however, cause growth beyond the normal stature of the animal The failure to produce giant animals is not clearly understood, but it has been attributed to the secretion of an anti-growth hormone by the animal so treated It has also been suggested that the growth hormone is identical with prolactin Owing to the difficulty of preparation and standardisation, the growth hormone has not yet come into clinical use One of the most successful ways of standardising it is to employ strains of dwarf mice. The dwarfism of such mice has been found to be due to under-development of the anterior lobe of the pituitary, and when they are injected with the growth hormone, they can be made to grow to the normal size

THE GONADOTROPHIC HORMONE

One of the earliest signs following hypophysectomy is cessation of the œstrus cycle in the female animal and diminution in the size of the external genitals of the male In course of time the secondary sexual organs will atrophy completely in both male and female, and this can be treated by implantation of anterior lobe into the hypophysectomised animal or alternatively by injecting suitable extracts Many attempts have been made to separate the gonadotrophic principle of the anterior lobe of the pituitary, but unfortunately these attempts have not yet been successful. The most recent observations by H. M Evans suggest that the gonadotrophic fraction of the pituitary contains the following hormones:—

THOSE INFLUENCING THE FEMALE GENITAL SYSTEM

(1) The follicle-stimulating hormone, capable of producing maturation of the follicle, ovulation and corpora *hæmorrhagica*

(2) A follicle-luteinisation factor, capable of converting the non-ruptured immature follicle or the corpus hæmorrhagicum into a corpus luteum

(3) An interstitial-cell-stimulating substance, capable of stimulating the ovarian interstitial cells to secrete an œstrogenic hormone.

(4) An inhibitory substance.

THOSE INFLUENCING THE MALE GENITAL SYSTEM

(1) A testicular rehabilitation hormone, capable of restoring the histological architecture of the testes but incapable of causing spermatogenesis.

(2) A spermatogenic hormone, capable of acting upon testes rehabilitated by the above hormone but not acting in its absence.

(3) An interstitial cell stimulating hormone acting upon the testicular interstitial cells and causing them to secrete the male sex hormone

(4) An inhibitory substance

Thus the gonadotrophic hormone appears to consist of three essential parts which act in a different manner on the ovaries and testicles, and it is interesting to note that it will act on either sex The gonadotrophic substance is found in three other sites besides the pituitary—namely, the serum of pregnant animals, and the placenta and the urine of pregnant primates From the serum of the pregnant mare it is possible to extract a substance consisting in the main of the follicle-stimulating fraction, with varying amounts of interstitial cell stimulating substance The injection of this hormone will cause rapid maturation of the follicles and ovulation attended with very little luteinisation On the other hand, extracts of the urine from pregnant primates contain a substance, known as prolan, whose action in the main is luteinising This also contains interstitial-cell stimulating hormone That from the placenta is almost entirely luteinising in character

The confusion resulting from a study of the factors in these various gonadotrophic substances can well be imagined

THE THYROTROPHIC HORMONE

It has been found that injections of suitable extracts of anterior lobe of the pituitary gland cause an increase in the basal metabolic rate, exophthalmos and a histological appearance of the thyroid gland closely resembling that of Graves's disease If the injection is persisted in the extract loses its effect and the animal becomes immune This immunity can be transferred by injecting the serum of an immunised animal into a normal one J B Collip, who made this observation, postulated the presence of an antihormone To this I shall return presently

ADRENOTROPHIC HORMONE

Another of the earliest signs of hypophysectomy is a very rapid diminution in the thickness of the suprarenal cortex In some species, particularly birds, the interference with the cortical function is so severe as to cause death In the duck, for example, it is necessary to inject cortin in order to maintain life after hypophysectomy

This corticotrophic hormone has been separated from the others but not isolated in a pure form

PROLACTIN

The presence of prolactin was detected by injecting extracts of the anterior lobe of the pituitary into pigeons and causing development of the crop glands By injecting prolactin it is possible to obtain lactation in the mammal, providing the structure of the breast has been built up by œstrone treatment As has already been pointed out, this hormone may be identical with the growth hormone, as Riddle believes

TROPHIC HORMONES

The pancreatic and parathyrotrophic hormones are examples of the trophic hormones It has been claimed in both these cases that histological changes can be detected after hypophysectomy, and that such changes can be prevented by administration of suitable extracts of anterior lobe This, however, is not absolutely certain, and much more work will have to be done before these observations can be completely explained

"*Houssay animals*"—Houssay made a remarkable observation that removal of the pituitary from the depancreatised dog resulted in disappearance of the glycosuria and an apparent restoration of the dog to normal Such animals are now known as Houssay animals, and are prone to suffer from hypoglycæmia This observation has now been extensively confirmed throughout the world, and sheds an entirely new light on the rôle of the pituitary in carbohydrate metabolism Houssay and his collaborators found that when such dogs are injected with extracts of the anterior lobe ketonuria and glycosuria develop

F G Young has lately shown that it is possible to produce an extract which, when injected on some three occasions into the intact dog, will cause permanent diabetes This fundamentally important observation indicates for the first time the production of diabetes by the injection of an extract of normal tissue, and it is also an example of the production of a permanent lesion by the injection of a naturally occurring substance The islands of Langerhans are no longer to be seen in the pancreas of these animals The diabetes is characterised by a severe glycosuria, relative resistance to insulin, and absence of ketonuria

There is little doubt that development of this work will make much clearer the whole mechanism of diabetes mellitus

ANTIHORMONES

As already pointed out, the thyrotrophic hormone loses its action on repeated injection, but the immunity obtained is temporary Collip postulated that repeated injections of this substance cause secretion of the anti substance and he suggested that the activity of any hormone depends on the balance between the amount present and the amount of the antihormone This he called the law of inverse proportion Powerful antihormone properties have been ascribed to the growth hormone and to thyrotrophic and gonadotrophic hormones Many attempts have been made to discover the main characteristics of this antihormone reaction, and new advances in this direction are hoped for Attempts have been made to treat Graves's disease with antithyrotrophic hormone, but so far these have not been successful

OTHER PITUITARY HORMONES

Some years ago B Zondek demonstrated that an extract of the pars posterior of the pituitary is capable of causing abnormal *pigmentation* in certain tropical fish He suggested that this hormone is responsible for the conversion of melanogen into melanin R S Ferguson found it in melanotic tissue and in the urine of patients with general melanomatosis The claim is also made that it will protect against diabetes insipidus, and Ferguson has used this as a basis for its standardisation

Collip and his collaborators have demonstrated in the pars anterior and pars intermedia the presence of *metabolic* principles which on injection immediately increase the metabolic rate Such an effect they believe cannot be due to the thyrotrophic hormone, for this requires time for action By various eliminating experiments it can be proved that this metabolic principle acts directly on the cells of the body stimulating the metabolism and producing a big increase in the consumption of oxygen

The classical work leading to the isolation of the oxytocic and vasopressive principles of this part of the pars posterior of the pituitary is so well known that little need be said here It is very difficult to allot a physiological rôle to these substances. It has long been said that *oxytocin* is responsible for the onset and conduct of labour, but until comparatively recently no clear-cut evidence of this was obtained. Now however S. W. Ranson et al. have shown that labour is prolonged indefinitely in an animal with diabetes insipidus in which the infundibulum and base of the brain have been injured, and that this delayed and protracted labour can be adequately treated by injection of oxytocin. Thus it seems that at last a definite rôle has been *found* for this substance in animal physiology.

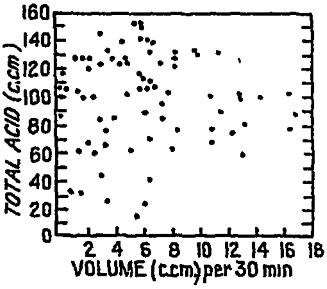


FIG. 2—Relationship of acid to volume of gastric juice in a hypophysectomised animal, showing abolition of pari passu increase.

With regard to *vasopressin* one of the difficulties has been the relative absence of vasopressive changes in hypophysectomised animals. From a preliminary series of experiments, Dodds, Noble, et al felt that they had obtained very definite evidence of the physiological part played by the pituitary lobe and by the vasopressive principle They showed that injections of large quantities of this substance produced a severe hæmorrhagic lesion in the acid-bearing areas of the stomach, and that this was caused essentially by inhibition of the gastric secretion, from which they concluded that for secretory activity of glands two factors were necessary—firstly, stimulation of the cells of the particular gland, and secondly, marked increase of the blood-flow to supply fluid to the gland. This could only be achieved if the flow through the capillaries to the gland was controlled by vasopressin. In the case of the stomach, a stimulant known to produce a secretion of hydrochloric acid acts in two ways, firstly by causing the cells to secrete hydrochloric acid, and secondly by acting on partially constricted capilaries, causing wide dilatation and consequent increase in the blood-flow. By this means a constant relationship is ensured between the acid content and the volume of the juice This is demonstrated in fig 3, which shows the relationship between acid and volume in a number of normal animals. Thus it can be seen that any increase in the acid is followed by an increase in the volume of juice secreted. In hypophysectomised animals on the other hand there is no relationship whatever between these two factors, as is evident from the complete scattering of the values on the chart (fig. 2) It is suggested that this is due to the lack of vasopressin

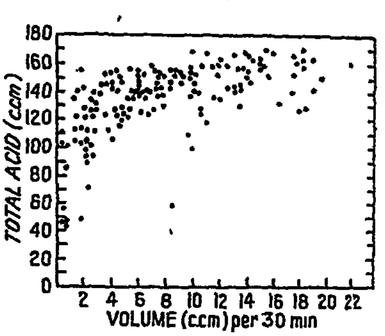


FIG. 3—Normal relationship of acid to volume of gastric juice, showing pari passu increase

SPECIAL ARTICLES

ÆTIOLOGY AND TREATMENT OF OSTEO-ARTHRITIS

BY T. T. STAMM, M.B.Lond., F R C S

ASSISTANT ORTHOPÆDIC SURGEON TO GUY'S HOSPITAL, ASSISTANT SURGEON TO THE ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, LONDON.

(*Concluded from p* 756)

Treatment

Osteo-arthritis is by its very nature an incurable condition. The objects of treatment are therefore (1) to prevent or delay as far as possible further deterioration of the joint and (2) to relieve symptoms, of which the chief is pain Although surgical measures are very useful in osteo-arthritis, they cover too wide a range for consideration in this paper. Non-operative measures only will therefore be discussed.

PREVENTION OR DELAY OF DETERIORATION

Further deterioration of the joint may be prevented or delayed by treatment directed towards the primary cause or by treatment which aims at improving the local circulation.

Treatment of the primary cause.—From what has already been said it is clear that osteo-arthritis is never a primary condition but always the result of previous damage to the joint Where the original damage was mechanical, such as a fracture, little can usually be done if osteo-arthritis has already begun It is too late to attempt reconstruction of the articular surfaces where these have been displaced, but in some cases the general alignment of the joint can be improved by an osteotomy above or below it, and such an operation is then justifiable.

Often, however, there has been no mechanical injury, and the osteo-arthritis is the result of damage caused by an infective or metabolic arthritis. Often this primary cause may still be active, and the symptoms may be due to this rather than to the more obvious osteo-arthritis. Although I suggest that osteo-arthritis is a purely local mechanical process, it does not follow that general treatment should be neglected. In that type of case in which some general constitutional disturbance, such as gout, is the primary cause of the arthritis, treatment of the primary condition is still the most important consideration.

Treatment of the local circulation —It has been suggested that the state of the local circulation plays an important part in the production of osteo-arthritis, and that anæmia of the part accelerates both the degeneration of the articular cartilage and the sclerosis of the bone ends Further, in the absence of an efficient circulation, the synovial membrane cannot secrete a proper synovial fluid, and the absence of proper lubrication in turn must also accelerate the degeneration and wearing away of the articular cartilage. It is for these reasons, as previously stated, that osteo-arthritis is so much commoner and more severe in elderly or arteriosclerotic patients.

Local heat in the form of diathermy or infra-red rays, general massage to the limb, and gradnated exercises (without weight bearing) all help to stimulate the circulation and so assist in preventing further deterioration of the joint

RELIEF OF SYMPTOMS

Pain is the one great symptom in osteo arthritis, and it is for the relief of pain that the great majority of patients seek treatment Unfortunately the various forms of therapy which have been found to be of service for the relief of pain are too often prescribed indiscriminately and with little regard for their precise indication It must be emphasised that there are several possible causes of pain in osteo-arthritis, each of which produces a certain type of pain, and that a specific treatment is available for each type It is therefore essential to determine in each case the exact cause or causes of pain, so that the appropriate treatment may be given with some hope of success

Pain associated with tension in bone is seen most typically in cases of bone sarcoma or Paget's disease It is liable to develop, however, in all cases in which there is sclerosis of bone , hence it is often met with in osteo arthritis It is described as a constant ache or " boring " pain, unaffected by rest or activity, and is usually at its worst when the part is warm , it is therefore usually bad at night It is often affected by changes in the weather It is for this type of pain that deep X ray therapy is of especial value , it usually gives relief in the course of a week or two after the treatment X ray treatment also appears to exert some effect in delaying the progress of the degenerative changes

A man, aged 65, complained of pain in the left hip of several years' duration, which had increased in severity during the last few months The pain was continuous, worst at night, and little affected by activity, though it was often worse after he had been on his feet a lot Movements of the joint were fairly good, with flexion to a right angle but with limitation of abduction and rotation No pain on movement unless forced Radiography showed loss of articular space, slight formation of osteophytes round the head of the femur, and considerable sclerosis of the head of the femur and acetabulum

The joint was manipulated under anæsthesia, and this was followed by a course of heat, massage, and exercises, which failed to relieve the pain The patient was then referred for deep X-ray treatment, which almost entirely relieved his pain in a month after the treatment There was no justification for manipulation in this case, for the pain was typical of the type most benefited by deep X rays

The Laval operation, which consists of drilling a hole into the bone close to the articular surface, also appears to relieve this type of pain, possibly by relieving tension inside the bone

Pain due to adhesions and fibrosis is caused by the stretching of adhesions or of contracted parts of the articular capsule It is always aggravated by activity and relieved by rest , it is therefore always at its worst towards the end of the day On examination it is found that pain is only produced when movements are pushed to extremes , movements which avoid the extremes of which the joint is capable are painless, even under load It follows that the stiffer the joint, the greater is its liability to this type of pain This is one of the commonest causes of pain in osteo arthritis

The treatment for these cases is manipulation of the joint This is done under an anæsthetic in order to obtain relaxation, the manipulations being performed with the articular surfaces distracted from one another if possible Only a slight increase in movement should be aimed at in each direction to avoid a subsequent reaction It is far better to repeat the manipulations on several occasions than to attempt too much at one time In the intervening periods active assisted exercises are given

When the adhesions can be felt or can be heard to give way during the manipulation, the prognosis is good , when, however, an elastic resistance is encountered, which can only be stretched, the limitation of movement is due to a general fibrosis in the capsule and little improvement can then be expected Gradual stretching of the capsule is all that can be done and rarely gives lasting improvement, for the fibrous tissues tend to contract again

A woman, aged 67, complained of pain in the lower thoracic region of the spine, which had been present on and off for thirty-five years There was a vague history of a fall at about the time when she first had pain For several years she had had pain every day, worst in the latter part of the day, but little pain at night It was relieved by lying down and resting, though some discomfort still persisted Her spine was not very stiff, though pain was produced by forced movements of the lower thoracic portion Radiography showed osteo-arthritis between the ninth and eleventh thoracic vertebræ, with gross formation of osteophytes After a manipulation under anæsthesia the pain was immediately and almost completely relieved The patient remained free from pain for the next six months and was then lost sight of

This is a striking example of the dramatic results obtainable by manipulation in suitable cases, even though advanced osteo arthritis is present, and this is especially true of the spine In her case the symptoms were typical of those caused by the stretching of soft parts, resulting from stiffness or " locking " of the joints

Pain due to nipping of soft tissues —The redundant folds of synovia, or even portions of the capsule, are liable to be nipped by osteophytes during movements of the joint The resulting pain resembles that caused by adhesions in that it is present only during activity and is relieved by rest It differs from it, however, in two respects (1) the pain is sharper and more momentary, the patient remarking that the joint tends to " give way " suddenly, and (2) the pain is on the opposite side of the joint to that caused by the stretching of adhesions For instance, in the knee joint, during flexion pain due to stretching is felt in the front part of the joint, whereas pain due to compression or nipping is felt at the back of the joint This type of pain is difficult to relieve except by limiting extreme movements of the joint Manipulation sometimes helps, presumably by giving greater mobility and hence more " play " in the articular movements Sometimes, when the symptoms are very definite and localised, excision of affected portions of the synovial membrane or of osteophytes is worth while

A woman complained of pain in the metatarso phalangeal joint of the great toe The pain would come on very suddenly, so that she was immediately unable to put the toe to the ground The pain would persist for variable periods up to several hours and then gradually pass off There was slight osteo arthritis of the joint and a point of acute tenderness on the dorsum over the articular line when the pain was present The pain was relieved by applying strong traction to the toe to distract the joint surfaces for a few moments and then moving it in all directions while maintaining traction The pain disappeared suddenly and was believed to be due to nipping of a synovial fringe Thereafter the patient was able to get rid of the pain as a rule by pulling on the toe for a few moments herself

I have had personal experience of this condition, which is not at all uncommon.

Pain due to grinding together of rough surfaces.—Since the articulating ends of a bone are believed to be insensitive, this pain is presumably caused by the compression of soft parts caught between the opposing rough surfaces. Pain due to this cause is again only present during activity but differs from the preceding two types in several respects. Thus, it is only present when movements are performed under load. If traction is applied to the limb, the pain on movement is at once relieved. The only exception to the rule is the knee-joint, in which patellofemoral movements are always performed under pressure owing to the tone of the quadriceps muscle, and traction on the limb cannot in any way relieve this pressure. Further, when the joint is under load, pain is experienced with all degrees of movement and not merely at the extremes. This type of pain naturally occurs most commonly in the lower limb. It can only be relieved by fitting some appliance, such as a weight-bearing calliper, which reduces the load on the joint. In the case of the hip, for example, this still permits movements, but it relieves the pressure on the joint. This type of pain is not only common but also the most difficult to treat by conservative means and is therefore one of the main indications for some form of surgical operation.

Pain due to inflammation.—Osteo-arthritic joints are particularly liable to recurrent attacks of inflammation, which may be due to one of three causes: (1) recurrent attacks of the inflammation which caused the original damage to the joint and initiated the osteo-arthritis; (2) attacks of fibrositis, which always tends to settle in a weakened or damaged spot; and (3) the inflammation which is apt to follow the minor traumata to which such a vulnerable joint is liable.

Pain of this type has the characteristics of pain due to inflammation elsewhere in the body and is associated with an increase in the stiffness of the joint and with spasm of the muscles. It is made worse by continued activity but not entirely relieved by rest. It is at its worst on first movements after a period of rest; with continued movement it eases off for a short time and then increases again, if activity is continued. Where pain of this type is present, especially if associated with the other usual signs of inflammation, rest is indicated until the inflammation has subsided; after which carefully graduated exercises are instituted. Heat and very gentle massage help to relieve pain and spasm. Where pain of the type due to inflammation persists for long periods with a few signs of active inflammation, treatment by deep X rays again appears to be of definite value. A period of immobilisation in plaster is often of considerable benefit.

A man, aged 58, complained of pain in the right hip, which had been coming on for three years and had been severe for six weeks. The pain was continuous, though somewhat relieved by rest and the application of hot-water bottles. Examination showed a moderate osteo-arthritis of the hip, with pain on all movements, which were resisted by voluntary spasm of the muscles.

A plaster spica was applied and kept on for six weeks. Several septic teeth were dealt with at the same time. No other possible sources of infection were found. On removal of the plaster movements were rather restricted but painless. The patient was given a course of massage and assisted exercises before being allowed to get up. On discharge he could walk without pain, provided he did not overdo it, and he has remained very considerably improved.

Referred pain.—Osteo-arthritis may often cause referred pain, which may be considerably more troublesome than the pain in the joint. This is particularly liable to happen in osteo-arthritis of the spine, especially when associated with fibrositis. It may also happen with other joints—e.g., the hip, when the pain may be referred to the knee. The commonest example in the spine is sciatica referred from osteo-arthritis of the lower lumbar spine, but it is also common in the cervical region, where it may be referred along the occipital nerves, causing occipital headaches, the supraclavicular nerves, where a diagnosis of rheumatism of the shoulder may be suggested, or down the brachial plexus, simulating brachial neuritis.

Treatment must depend on the state of the osteo-arthritic joint. If there is inflammation, rest is indicated; in other cases a manipulation often succeeds in abolishing the pain.

A man, aged 65, complained of severe precordial pain of over a year's duration. The pain came on in attacks lasting a variable period and bore little relation to rest or activity. No cause could be found for this in his cardiovascular system, but radiography of the spine showed gross osteo-arthritis between the fifth and sixth thoracic vertebræ. The patient then developed melæna, and a carcinoma of the stomach was suggested. No sign of carcinoma anywhere could be found. A gastroscopy, performed after he had been on a gastric diet for some time, revealed a healed gastric ulcer. His pain, however, still persisted.

A manipulation of his spine led to complete relief of the pain. The pain has since recurred to a slight extent on several occasions, but he is markedly improved.

This case is interesting in view of the difficulties of diagnosis and the site of the pain, with the absence of any definite symptoms in the spine.

Conclusion

Since osteo-arthritis is by its nature an incurable condition, conservative treatment is mainly indicated for the relief of pain. An attempt has been made to show that this pain may be due to various causes, and that success in treatment can only be achieved by first determining the cause or causes of the pain in each case, so that the appropriate treatment may be given. Since the treatment varies according to the exact cause of the pain, empirical treatment for "osteo-arthritis" as such has little chance of improving the patient's condition.

IRELAND

(FROM OUR OWN CORRESPONDENT)

HEALTH OF DUBLIN

THE annual report of the medical officer of health for Dublin during last year has just been issued. The birth-rate for the city, excluding certain births in institutions assignable to other areas, was 24.4 per 1000 of the population, the rate in the previous year being 24.7. The death-rate was also reduced from 14.9 to 13.3. This was the lowest death-rate on record. The infantile mortality-rate was 98 per 1000 births. The variations in the past 10 years have been very wide; for example, in 1936 the rate was 115, whereas in 1934 it was only 79. The medical officer of health stresses the need for breast-feeding, also the need for more antenatal and neonatal care. However discouraging the present rate may appear, there has been enormous improvement during the last thirty years. The rate in Dublin in 1900 was 175 per 1000 births, and there was little improvement until after 1915, in which year the rate was 165 , from that year there was a steady drop until 1934 when the figure was 70 A remarkable drop in the mortality from puerperal sepsis is recorded—the rate in 1938, 0 4 per 1000 births, being less than 25 per cent of the figure in 1928 On the other hand the deaths from other puerperal conditions showed a slight increase The death rate from tuberculosis—pulmonary and other forms—is diminishing, but the rate of decrease has been much slower in the period since 1920 than in the two previous decades

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

GLASGOW GRADUATION ADDRESS

WHEN he addressed the graduands of Glasgow University last week Sir Hector Hetherington, the principal, said that the new graduates were going out at a difficult time, and in the last two years events had rarely allowed them to concentrate with free minds on their proper business of study and learning He was glad that through it all so many of them had gone on quietly and firmly with their own duties and helped to maintain in cheerful vigour the normal life of the university That was the best of auguries for the days to come The war would make its demands on medical men as on everyone else, but they were more fortunate than most Their part, whether in military or civilian service, would be their own chosen work of healing They might hope to be better practitioners because of the intense experience of the next few months or years They had a special privilege in this—that for them there would be no distinction between friend and foe Whoever comes to the doctors' care, whatever his origin or uniform, would have the single rank and claim of " patient " or sufferer, and it was the glory of their calling that they would give their best to all In their common service and common tradition on both sides of the fighting lines there was one of the continuous strands of that civilisation which has survived so many shocks and which would survive even this disruption

BLOOD BANKS

Partly in order to stimulate the enrolment of further donors the organisers of the Scottish national blood transfusion service have introduced a system of " bank books " Depositors of blood will be given books in which each donation of blood will be recorded The blood given is to be carefully labelled with the name and number of the donor and as soon as it is used a certificate giving full particulars of the person to whom it was administered will be sent to the donor for pasting into his or her bank book Attempts are being made to interest people all over the country in forming ' life saving certificate groups " Volunteers are coming forward more slowly now than at the beginning of the war in the larger cities but in the smaller towns where the campaign is only now gathering momentum the mobile testing teams are being kept busy A large bank has been established in Edinburgh and the blood already drawn is being used for ordinary medical and surgical emergencies The bank s reserves are to be maintained by a steady withdrawal from tested donors, only universal donors being used just now In Glasgow a large number of donors have been tested and as soon as a decision is reached as to storage an adequate bank will probably be established

NEW GOVERNMENT BUILDINGS

The new Scottish Government buildings, built on the Calton Hill, Edinburgh, on the site of the old Calton prison, have been opened Some months ago a vigorous discussion took place in the Scottish papers regarding a name for the buildings, and " St Andrew's House " was finally decided upon All headquarters divisions of the Department of Health for Scotland are now to be accommodated in the new premises, thus grouping under one roof the various branch offices which have been scattered over the city

MEDICINE AND THE LAW

Value of a Finger

WHAT is the proper sum to compensate a young woman for the loss of two joints of the second finger of her right hand ? In Henderson *v* Clifford Watmough & Co a factory worker, aged 17, had suffered injuries which made amputation necessary Her employers, sued for damages for negligence, admitted liability The amount of the damages for her injury, including the pain and suffering and the permanent disfigurement, was for the county court judge to decide He awarded £85 (including £10 for special damage) The plaintiff asked the Court of Appeal to declare the amount so small as to be an entirely erroneous estimate The appellate court expressed no opinion on the point and merely said it could not interfere inasmuch as the County Court Act allows appeals only " in point of law " Lord Justice du Parcq said that the principles of law required the county court judge to take into consideration certain well recognised kinds of damage There was nothing to show that the trial judge had failed to comply with this duty If the sum of £85 were, for the sake of argument, inadequate compensation, the judge's mistake was not necessarily one " in point of law " The quantum of damages was a question of fact In such a question the Court of Appeal had no jurisdiction to intervene

It has been commonly said among lawyers that judges sitting without juries (under the recent policy which discourages jury trials because they prolong the duration of a case) have proved even more generous in their pecuniary awards to injured plaintiffs than juries ever were Possibly no two judges would have given Miss Henderson the same amount Which would she sooner have to day—her right hand intact or £85 in cash ?

The Lancet 100 Years Ago

October 5, 1839, p 60 From a leading article

Since the introduction of vaccination a mild and inoffensive complaint has been substituted for a loathsome malady the mortality of small pox has been diminished by one half and three years have been added to the span of human existence These are in themselves sufficient advantages to render vaccination what we have frequently termed it in the pages of this Journal the greatest boon which science has conferred upon mankind But man after all is a frail and miserable machine The seeds of decay and death are innumerable We may defer the fated hour for a few short months—for a few years—but that body in which we now carry ourselves so proudly must return to the dust whence it sprung, and be dispersed by the winds of Heaven, we know not whither Vaccination cannot render us immortal like every other human discovery it has its imperfections and we only deceive ourselves and deteriorate, in public estimation, its real value by an attempt to overrate the benefits which may accrue therefrom

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month, his name can be seen later in the half-yearly index

FROM A POITRINAIRE

I

ONE advantage, or so my friends told me, of a spell of enforced idleness is the extra time available for non-medical reading. And so it seemed to one who had tried too slavishly to keep abreast of the current literature in his own specialty and to maintain at the same time an intelligent interest in the advances in other branches of medicine But alas! good intentions of improving the mind and becoming a "man of culture" have been largely frustrated; for I found that a mental and physical laziness had descended upon me and during the first few months here I was content to vegetate—to eat and to sleep and, like the old lady, sometimes to lie and think and sometimes just to lie. Then, too, the hospital routine quickly takes a hold and it is amazing how occupied one can be doing little or nothing. As hospitals go, they are kind to us here. Our day begins at 7 A.M. with pulse and temperature readings, followed by the morning ablutions, bed-making, a visit from sister and a glance through the newspaper before breakfast at 8.30 After performance of the natural functions, there follows a detailed perusal of the day's news from the "hatches, matches and dispatches" on the first page to the "desirable residences" on the last. It is one of the penalties of the idle life that in these days of recurrent crises and wars there is ample time to read all the depressing news. One tries, of course, to evade the issue by beginning with the fourth leader—just as one reads first "Grains and Scruples" or "Tonics and Sedatives"—going on to the correspondence columns where admirals, bishops and lords of the realm love to air their views, sport (with special attention to Bernard Darwin on Saturdays), and general news until finally one is forced to tackle the august first leader. And now let me air another grievance. Why must we have a spate of reading-matter at the week-end? Mine includes *Picture Post* (now published on Wednesday), a real pictorial-news paper and ideal for the practitioner's—if not the consultant's—waiting-room; the *Spectator*, the best guinea's worth in the newspaper market; the *Listener* because I am more eye-receptive than ear-receptive; the *New Statesman* to counteract the conservative elements, and two medical weeklies. The result is that a week-end which should be given over to the family and a game of golf is spent—or mis-spent—in an arm-chair reading, reading, reading

* * *

To return to the sanatorium and the daily routine. At 10 o'clock work begins; patients who are up all day and on "rounds" have first to clean the vegetables and the daily prayer is that it won't be onions; "graders" are sent to their various jobs of work by the head-gardener, while bed-patients wait expectantly for the doctor's visit, trying the while to think of something bright and chatty. Afterwards, two or three forgather, the latest hospital news is handed round and we hear for perhaps the hundredth time the sad tale of this one's A.-P. or that one's "thoro"; for men in hospital are even greater gossips than women and, being mortal, love to dilate on their own disabilities. At 12 noon the first rest-hour begins, when one may read but neither talk nor write nor even listen to the radio. Lunch at 1.15 is followed by the second rest-period at 2.30, not applicable to "graders," and disturbed for bed-patients by more washing and tail-rubbing. Work stops at 4.30 when we queue up for a welcome mug of tea, and the last rest-hour begins at 5.15 to be broken by evening P.'s and T.'s and the surreptitious switching-on of radios for the 6 o'clock news Supper at 6.30 is followed by another doctor's visit and the rest of the day is our own until 9 P.M. But there are the Fol-de-rols, Band-Waggoners, Music-Hall and the Proms to while away the evening, bridge and solo schools do a flourishing trade, while the more industrious among us are busy with rug-making or tapestry work. So you see how difficult it is to settle down to the business of improving the mind.

* * *

Sanatorium patients usually have the reputation of being inveterate grousers The reasons are fairly obvious. Take a wardful of 20 men in the prime of life, suffering from a chronic but not grossly incapacitating disease, with minds and bodies unoccupied, under a rather irksome discipline and on a diet not distinguished for its variety or attractiveness, add one or two chronic malcontents, and you have all the ingredients necessary for a small rebellion. Here, things are done differently, and my first and abiding impression was, and is, the cheerfulness of the patients

What is the recipe? First, the wards accommodate no more than 4, 5 or 6 beds, and patients who are likely to be in bed for a long time are given single cubicles; second, the proportion of bed-patients seldom exceeds a third of the total; third, the patients are mostly working-class with a leavening of the professions which on one side ensures a fair standard of general behaviour and on the other prevents snobbery; and last and most important, there are few idle hours For here was born occupational therapy for the tuberculous, sired by Marcus Paterson and brought to manhood by his successor. From the time he is allowed up six hours, the patient has more or less to fend for himself; he makes his own bed, tidies his room, and washes up his crockery. When up all day he helps with the vegetables and is given one "round" (half-a-mile's walk morning and afternoon), on successive weeks the number of rounds is increased up to eight, provided that by the deceleration-of-pulse test the patient is found to be fit for the extra exercise. He then passes on to the various grades of work: grade 1, picking up and carrying weeds &c., 2, hoeing and sweeping, 3, digging and wood-chopping, 4. felling and sawing trees, each grade being calculated to bring a different set of muscles into action. For the leisure hours there are the usual recreation rooms and such outdoor "sports" as croquet, clock-golf and pitching and putting. Besides which, a committee of patients with president and secretary make provision for other amenities—distribution of newspapers and the early morning mug of tea, supplying bed-patients with their wants from the sanatorium shop, promoting whist-drives, spelling-bees, &c.—and in a general way help to maintain discipline and harmony in our little community.

It is significant of the value of occupational therapy that many of the men, with little taste for reading or letter writing, find Sunday the only tedious day of the week For the same reason in the outside world, the Sunday newspaper has become immensely popular and the ordinary citizen seldom buys less than two of these to help pass the hours of ennui The general cheerfulness and friendliness here is a great tonic to the newcomer and is in striking contrast to the bored expressions to be seen at sanatoria where the patients are allowed a greater "freedom" And yet I frequently heard paying patients at the Brompton say they didn't want to go to —— because the men there were made to work It is easy to point the moral for the great army of the unemployed What physical and moral deterioration idleness breeds, and how unwilling have our leaders been to follow the splendid examples of the American Civilian Conservation Corps and the German labour camps! I have seen the former and have had first hand information about the latter, and there is no doubt about the tremendous benefit they have brought to the youth of their respective countries Perhaps the newly founded militia—or "belitiamen" as the little girl in *Punch* called them—would have helped to remedy this evil in our midst by giving the unemployed man a chance to savour the advantages of an occupied and disciplined life Now instead, war and general conscription will have to tackle the job

* * *

Sept 30 We all, save a handful of bed patients, have been evacuated After the excitement of the removal, I find myself in the wilds of Aberdeenshire where the sight or sound of an aeroplane even now brings work to a standstill News of the war has displaced the weather and is discussed by the local worthies in a very personal fashion as if Hitler himself were doing mortal combat with the Poles An even more absorbing topic for conversation is the evacuee Stories abound of raids on the farm yard livestock and orchards of lousy heads and drunken brawls, but my impression is that most of the children are clean and tidy and happy to be in the country, there is little doubt but that their stay if of any duration will be doubly beneficial It is otherwise with the mothers who seem bewildered and unhappy at their sudden transplantation from the east end of Glasgow to the quiet countryside Many of them have already returned home and it is obvious that the impact of the slum dweller upon the countryman has been a little too much for both Love and understanding of the country must be imbibed early in life

PUBLIC HEALTH

Treatment of Evacuated Children

THE Government's arrangements for the medical treatment of evacuated children apply only to children unaccompanied by their parents The capitation fee is 10*s* a year for each child and will cover attendance and medicines The basis for the disbursement of the fund will be decided by the local emergency committees In districts where chemists undertake insurance dispensing it is not always convenient or possible for the dispensing to be done by the doctor, and insurance committees who are participating in the administration of the scheme will arrange for doctors to issue prescriptions either on special forms or on ordinary forms with the name of the local emergency committee or bureau stamped on them These prescriptions will be dispensed by insurance chemists and payments will be made to the chemists by the local emergency committees, who will recover the cost of the prescriptions from the doctors who issue them Where a practitioner normally dispenses for his insured patients he will be expected to supply medicines to the children The National Association of Insurance Committees has suggested to the Ministry of Health that the scheme ought to be extended to children who are accompanied by parents

A New Occupational Risk

According to Twort and Lyth[1] several fishermen have contracted skin cancer after handling tar used for the preservation of fish nets Samples of this tar, together with others used as fish net preservatives, have been studied in the cancer research department of Manchester University The tar of which complaint had been made was manufactured in a horizontal retort at a temperature of 1100° C It was highly carcinogenic for mice 75 out of 100 bearing malignant tumours after bi weekly applications of the tar for forty weeks Three other tars were also carcinogenic for the skin of mice but one said to have been made from oil pitch and light-tar oils, was less so than the others It appears that with coal tars the retorting temperature plays a big part in determining their carcinogenic powers and probably also their preserving properties It is possible that by a process of oxidation, and the use of suitable solvents a tar product might be produced which possessed good preserving powers although non-carcinogenic Hopeful experiments in this direction have been carried out at Manchester University Twort and Lyth recommend that if gas tar as such is to be used for preserving fishing nets it should be made in vertical retorts at as low a temperature as is practicable.

Nature calling in the Shelter

Air raid shelters and trenches have been excavated in places frequently at a distance from public sewers and doubtless often well below the level of the nearest sewer Yet the people taking refuge in them will not, like people locked in rooms for hours in detective stories, be immune from the needs for evacuation of an unofficial kind Lavatories must be provided and must of necessity, be very different from those usually approved by public health authorities Water borne disposal would be dependent on power driven pumping systems which might fail during a raid, and the cascading of clean water from damaged flushing mains would cause great inconvenience Sanitary difficulties will also arise in rural districts thanks to the large increases of population

Clay[1] of the *London School of Hygiene and Tropical Medicine* has recently considered sanitation and A R P He favours the chemical closet for shelters and trenches It undoubtedly has great advantages The dissolution and sterilisation of fæces and urine by the caustic alkalis used is a simple and thorough if rather expensive means of disposal For public shelters and trenches the form discharging into a soak away, with anti splash appliances is best For rural sanitation the oil-covered type is probably preferable

---

[1] Twort J M, and Lyth R., *Nature Lond* Sept. 2 1939 p 448

[1] Clay H H, *J. Roy San Inst* 1939 3, 125

He suggests 50 feet as a maximum distance between closets in trenches. Where chemical closets are not practicable, latrines of the sewage-to-soil type are recommended, not container-type earth closets Ventilation by dual-purpose manholes which can be opened from inside is suitable Trench floors must be kept dry, absorbent hard core draining to soakaways under water points is a suitable covering, and a drainage point is needed at the foot of each entrance ramp.

For permanent camps chemical closets are best; in temporary camps latrines will usually be preferable and Clay recommends the bored latrine constructed with a large 16-inch auger rather than the more usual trench. He advises boring some 20 feet into the sub soil and stresses the importance of suitable siting, bearing in mind flow in the soil Clay districts where the water-level in winter is only a foot or so beneath the surface offers difficulties The use of precipitants such as ferrous sulphate and lime will greatly decrease the difficulty of disposal of soilage water from bath and wash-up sinks.

It seems we must return to the primitive state of affairs where even the smallest community is a self-contained unit, capable of dealing with its own excretions as if nothing was "laid on." In future, "no modern conveniences"

OBITUARY

JOHN LYNN-THOMAS

K.B.E., C.B., C.M.G., F.R.C.S., F.A.C.S

At the age of 78 Sir John Lynn-Thomas died on Sept 21 at his home in Llechryd, Cardiganshire. He will be remembered for his highly individual and friendly personality and for his good work. In his heyday he was one of that small group of "provincial" surgeons—Rutherford Morison, Moynihan, Stiles, and Robert Jones—to whom the United States looked for surgical leadership in this country

Elliott & Fry

The son of a farmer, Evan Thomas of Llandyssul, Cardiganshire, he refused the succession to his father's farm and decided to be a surgeon After apprenticeship to a practitioner he went to the London Hospital, and distinguished himself by winning the Hutchinson prize for an essay on fractures of the skull. He was house-surgeon in 1887 and then went back to Wales to spend three or four years as resident at the Cardiff Royal Infirmary. Appointed thereafter to the honorary staff he became the first consulting surgeon in Cardiff, achieving a particular reputation for the surgery of the thyroid and prostate In 1900 he went to South Africa with the Welsh Hospital and he was in charge of it before the war ended, being created C B for his services On going back to Cardiff he was a notable figure in the life of the city, and in 1907 he was high sheriff of Cardiganshire. The war of 1914 found him with a reputation already made and this was enhanced by his work as consulting surgeon to the Western Command and then as deputy inspector of military orthopædics. Throughout his active career he was a general surgeon in the true sense, and it was his wide range of interests that enabled him to give invaluable support to Sir Robert Jones in organising the military orthopædic department of the Army medical services Lynn-Thomas and Robert Jones had been close friends for many years, they had taken many holidays together on the Continent. During his time with the Western Command, Lynn-Thomas had soon become convinced of the need for the segregation of potentially crippled soldiers in special hospitals. In Cardiff he was primarily responsible for the establishment of the Prince of Wales Hospital, which, beginning as a hospital for limbless soldiers, later became a complete orthopædic unit. After the war he used his powerful influence to make this hospital a permanent orthopædic centre for South Wales He also gave much help to the Royal Infirmary and other local hospitals, and to the Welsh National School of Medicine, whose establishment he had long desired and advocated. In the University of Wales he was for a time deputy chancellor.

In 1917 Lynn-Thomas was made C M G. and in 1919 K B E. He retired from practice in 1921, but he was still attached to medical affairs and was a member of council of the Royal College of Surgeons from 1918 to 1933

During the post-war years the younger orthopædic surgeons found great enjoyment in their contacts with him His complete absence of "side" and his entertaining conversation made him a centre of attraction at meetings of the British Orthopædic Association. He had a large head, and a great shock of hair; no-one could fail to notice him in a crowd, and if he was often combative he was generally forgiven because of his candour and simplicity. Among the marks of professional recognition he received and enjoyed were the honorary fellowship of the American College of Surgeons and the honorary licence of the Society of Apothecaries of London, conferred in 1931

Sir John Lynn-Thomas married Mary, daughter of Edward Jenkins of Cardiff, in 1892. Their only son died in 1928, and Lady Lynn-Thomas last year, so the only survivors of the family are two daughters In his last years he lived as the squire of Llwyndyrys, an old house in Llechryd He found excitement and romance in its history and in the excavations he made around it, and the results of his archæological researches were woven into two books. The house and grounds, it was announced last spring, were to be left to the University College of Wales at Aberystwyth so that his inquiries might be further pursued

LEONARD GRANT

M D. EDIN.

Dr Grant, who died on Sept 6 at the age of 79, was a son of James Dundas Grant, advocate, of Edinburgh. He was educated at the Edinburgh Academy and the College of Dunkirk, studying medicine at the London Hospital and Edinburgh

University, where he qualified in 1881 and took his M D four years later After graduation he was resident at Queen Adelaide dispensary, then at the West London fever hospital during the great epidemic of smallpox, and as clinical assistant at the Central London Throat and Ear Hospital he added to his usefulness Being thus equipped for general practice, he settled at New Southgate and married Louisa Wade, they had a son, who was killed at Loos while acting as surgeon to the London Scottish, and four daughters, two of whom mitigated the last years of his life when in addition to disease of the coronary arteries he was afflicted with blindness His store of whimsical humour was a surprise to the many old friends whom he delighted to welcome up to the last Among his other fields of usefulness was the Passmore Edwards Hospital at Wood Green, to which he was consulting medical officer, and the auxiliary military hospital at Tottenhall He was keenly interested in Epsom College A good family doctor and friend, and a good citizen

LAURENCE JOHN HONEYWILL

M B LOND, F R C S

THE sudden death of John Honeywill on Sept 17 from septicæmia and pyæmia, at the age of 27, came as a shock to his friends He was one of the more brilliant students of University College Hospital, and there was every reason to anticipate for him a distinguished surgical career He entered the medical school in 1933 with a Goldsmid exhibition He later shared the Magrath clinical scholarship and won the Atchison scholarship awarded to the student who "has shown the best work and greatest proficiency as a student of the medical school and hospital" In 1937, he took his F R C S England and last year his M B London with the university gold medal and distinction in surgery and obstetrics Since qualifying in 1936 he had been house surgeon, house-physician and casualty surgical officer at U C H He leaves a widow and a daughter born six weeks ago

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

BY MEDICUS, M P

WHEN Parliament rose in August last the total expenditure authorised for the year was £1453 million, of which £502 million was to be borrowed On Sept 3 "when we found ourselves at war," to use the Chancellor of the Exchequer's phrase, a note of credit for a further £500 million was adopted In this year we are therefore facing a two billion budget and in the years to come the amount will rise These gigantic figures were received by the House of Commons as the inevitable price we must pay in support of our cause without either resentment or objection, the first reaction was in fact the kind of laugh men give when going "over the top" For indeed this is the whole nation going into action The biggest income tax ever known, increased surtax, increased death duties, increases on beer, wine whisky, tobacco and sugar, an excess profits tax, and a levy to take place after the war on the increase of wealth during the war, were accepted as inevitable But many income tax payers will be glad of the proviso that enables them to elect to be assessed on the current year rather than on the previous year We may well imagine Hitler saying, to paraphrase an old story 'I don't know how it affects Great Britain, but by God it terrifies me"

The budget means great changes in the lives of all of us, a scaling down of the standard of living of many, and we may hope, with the new distribution of urban population in the rural areas, a scaling up of the standard of living of very many of the people who have been at a level too low for health and efficiency And with it all the financial strength of Great Britain remains that of a fortress, 'the pound sterling remains when all is said and done an accepted medium of international exchange" Whereas 'the German mark has no position as an international currency," and fears that it may repeat its catastrophic depreciation of 16 years ago press on the German mind With these observations Sir John Simon ended his budget statement, adding as his last sentence words which are a sober statement of the nation's aims:

If the price of victory be high, it is a price worth paying for it is the price of liberty and of all that makes life worth living for Europe and for ourselves"

The Chancellor's budget statement was made on the Wednesday, and something of the good reception which it received may perhaps be placed to the credit of the First Lord of the Admiralty, Winston Churchill, who on the previous day had made a tonic speech which raised the enthusiasm of the House to a high level At the conclusion of Winston's great story of the naval power of this country M.P's cheered and cheered again, and then gave him a second round, in a long experience of Parliament I had never heard the like No doubt of it, by that one speech Winston Churchill raised himself to a higher stature than he had attained before

* * *

So the great events defile before the House and so the lesser events follow them the story of confusion in the food distribution schemes under Government control, the grotesque story of the 999 members of the Ministry of Information of whom only a negligible number were journalists but one came from a museum and many from various Civil Service departments—as one member asked plaintively in a supplementary question, "What do they do with all the information they have got?" The Ministry of Health and the Board of Education are grappling [illegible] with the organisation of the new life in the reception areas The Ministry of Health have just issued a circular stressing many points of importance and among them urging the need for the town evacuating authorities to coöperate with the rural ([illegible]) reception areas by lending their medical and nursing staff The Ministry are ready to [illegible] financial difficulties and if rooms [illegible] have to be hired in the reception areas [illegible] purposes, then the [illegible] 100 per cent [illegible] the cost The [illegible] maternity [illegible] have accommodation [illegible] medical services [illegible] all these medical [illegible] will [illegible] attention The Government are of course [illegible] of the [illegible] on have [illegible] see that series of [illegible] for the [illegible] or other sidering [illegible] paid Government [illegible] It [illegible] constituency [illegible] criticism [illegible] for [illegible] appointments made to the Ministry of Information which are now to be cancelled? There is need for parliamentary opposition now as well as in times of peace.

FROM THE PRESS GALLERY

The War Budget

IN introducing his first war budget in the House of Commons on Sept. 27 SIR JOHN SIMON said that when he opened his last budget at the end of April, the estimated expenditure of the year amounted to £1,322,000,000 including defence expenditure totalling £630,000,000. The budget proposals were calculated to raise £942,000,000 from revenue and £380,000,000 was left to be borrowed within the financial year. But by July defence expenditure had grown to at least £730,000,000, and when Parliament rose in August the total expenditure was £1,453,000,000, of which £502,000,000 was to be borrowed. On the outbreak of war a vote of credit of an additional £500,000,000 was adopted, and he could not guarantee that that credit would be sufficient up to March 31 next. The revenue from existing taxation was not likely to exceed £890,000,000. It was necessary to propose additional taxation both because the Government must gather in by that means the largest possible amount to help war expenditure and because that course helped to secure that the spending power in the hands of individuals was not used for unhelpful purposes.

Coming to his new taxation proposals the Chancellor began by announcing that the standard rate of income-tax would be raised from 5*s*. 6*d*. to 7*s*. 6*d*. in the pound, subject to reconsideration later, and that in the present year the rate would be 7*s* A concession would be given to taxpayers who proved that they had experienced this year a substantial loss of earned income. If a taxpayer showed that his directly assessed income this year had been reduced by circumstances connected with the war below the figure of assessment by as much as 20 per cent. he would be entitled to substitute this year's actual income for last year's as the basis for assessment. Adjustments would be made in allowances which with one exception would not come into operation until next year. The exception which would be applied at once was that instead of the first £135 of taxable income being charged as at present at 1*s*. 8*d*. the charge would be 2*s* 4*d*; while next year, if the standard rate of tax was 7*s*. 6*d*., the rate would be 3*s*. 9*d*. But there would be a provision increasing the reduced rate zone which was now £135 to £165. Earned income allowance which was now one-fifth, with a maximum of £300, would be one-sixth, with a maximum of £250 The allowance for married persons would be £170 instead of £180 and the allowance for children £50 instead of £60. The sur-tax payer, who was subjected to a 10 per cent. increase in 1931 and a further increase last April, would suffer a still higher scale. The rates would run from 1*s*. 3*d*. at £2000 to 9*s*. 6*d*. for incomes over £30,000. Estate duty on estates exceeding £10,000 but not over £50,000 would be increased by 10 per cent, and on estates over £50,000 the increase would be 20 per cent The maximum rate of estate duty on the largest estates would thus be 60 per cent.

In the sphere of indirect taxation Sir John Simon called for further contributions from the consumers of beer, spirits, wines, tobacco and sugar. The extra duty on beer, he said, would be equivalent to 1*d*. a pint and on spirits 10*s* a proof gallon, equal to an increase in the price per bottle from 12*s*. 6*d* to 13*s*. 9*d* The increase on light wines and British wines would be 2*s*. a gallon and on imported heavy wines 4*s*. The rise in the tobacco duty would amount to 2*s* a pound, with corresponding increases on cigars An addition of 1*d* a pound would be made to the sugar duty. Lastly, the Chancellor announced the intention of the Government to introduce an excess profits duty on the model of the armaments profits duty applying to trade and industry generally. The question of a levy on war-time wealth was also being considered. The increases of taxation involved in this new budget amount to £107,000,000 this year and will rise to £226,600,000 next year.

Sugar

On consideration of the additional tax on sugar Mr. PETHICK-LAWRENCE said that the burden of this tax would fall very heavily on the lowest classes in the community. The Chancellor had given no indication that old-age pensioners, working-class families on a very low wages scale, or the unemployed would receive any compensation to meet this additional cost on the necessities of life.—Sir JOHN SIMON said he did not think it would be right that our indirect taxation should be limited simply to the people who smoked and drank. It was inevitable that he should choose some mode of contribution which, while it called for sacrifice, covered every sort of home. The greatest possible efforts were being made by the Government to restrain rises of prices. It was true that at the lowest end of the scale there were people to whom this addition was quite serious. It was also true that the imposition of such a duty did minutely increase the cost of living, he thought by about 1 6 points.—Sir FRANCIS FREMANTLE said the medical profession would be opposed to anything which diminished the nutrition of the people, and especially of the poorest classes who were the most ill-nourished. It had been suggested that the average incidence of this tax would be an extra twopence a week. He thought that the average among the poorer classes would be a good deal less than that figure. He asked the House to consider what proportion of the sugar consumed was devoted to real nourishment and what was used for amenity purposes, or was actually used in a way which was deleterious. Sugar was largely used in the manufacture of confectionery as well as in the beer industry. Confectionery was very largely used even by the poorest children and the poorest people The medical profession were united in an effort to try to save the health of the people by saving their teeth. It was the dental cavity which was at the root of rheumatism and innumerable troubles, and all those associated with public health in local government had been seeing to what extent they could extend the dental services, and had regretted that those services had not yet shown how to prevent cavities. Enormous damage was done to children by confectionery. It was the constant sucking of sweets and leaving the residue in and around the roots of the teeth that was so detrimental. Therefore, while he did not doubt that this tax would fall heavily even on those who confined the use of sugar to nutritive purposes, he thought the burden would be very slight for the majority.

QUESTION TIME

SEPT. 27–29

Petrol Ration for Doctors

Mr. DE ROTHSCHILD asked the Secretary for Mines whether he could now make a further statement regarding the issue of supplementary petrol rations to doctors, especially in the case of doctors living in scattered country districts far from a hospital, where the population had been increased by the influx of evacuated persons —Mr LLOYD replied: In view of the varying requirements of some 45,000 doctors it was necessary to make a first issue of supplementary rations on a provisional basis Individual cases are now being examined by the divisional petroleum officers in consultation with representatives of the British Medical Association with a view to ensuring that the essential requirements are met

Calling-up of Undergraduates

SIR THOMAS ROSBOTHAM asked the Minister of Labour and National Service, if undergraduates at the universities would be allowed to finish their terms before joining up for training and, if so, what course should they adopt to secure postponement —Mr Ernest Brown replied The undergraduates who are at present liable to be called up under the National Service (Armed Forces) Act are those who had reached the age of 20 and had not reached the age of 21 on June 3 last The postponements granted to them under the Military Training Act have been cancelled, but they will have an opportunity of applying for postponement on the ground of exceptional hardship when called for medical examination I should add that all undergraduates are being given the opportunity to apply to the joint university recruiting boards for assessment of their suitability for commissions in the Armed Forces of the Crown Following such applications, they will be interviewed by the boards or, if they possess certain scientific and technical qualifications, by special technical committees attached to the boards, which will in suitable cases advise that they should be allowed to complete their university course

Ministry of Information Staff

Sir E Grigg (Parliamentary Secretary to the Ministry of Information) informed Sir Smedley Crooke that the staff at headquarters of the Ministry of Information, and in the regional offices of the Ministry, included 388 civil servants, 50 officers of the fighting services and 43 professional journalists Nearly half of the number employed consisted of clerical, typing and messenger grades, and the news and censorship divisions, which accounted for 433 persons in all, were working on a three shift basis covering the full 24 hours a day This, of course, necessitated a proportionately larger staff

Sir Francis Fremantle Can my hon friend say whether some of the journalists include those connected with the technical press, especially the medical press, who would be of immense value to the Ministry of Information ? —Sir E Grigg I must ask for notice of that question

Gas Masks

Mr Ellis Smith asked the Home Secretary what steps had been taken to examine gas respirators , what was to be the procedure for the future in order to maintain and be sure of their efficiency , what proceedings had been taken against persons not carrying a respirator , and under what powers had such proceedings been taken —Sir John Anderson replied Local authorities have been advised, since the general distribution of respirators was made, that they should arrange for periodical inspection of respirators in the hands of the public. As regards the last part of the question, there are no such powers

Helmets for Babies

Mr Ellis Smith asked if he was aware of the concern over the lack of respirators for young children and babies, and a circular issued by a county chief constable advising mothers to take their children to an upstairs room and ensure that every door and window in the house was locked , what steps were being taken to expedite delivery , and on what date was it expected that there would be supplies for all —Sir John Anderson replied : These protective helmets are being distributed rapidly, but they cannot be issued to all areas simultaneously and the more vulnerable areas are being supplied in priority I have seen the circular to which the hon member refers, and the precautions which it recommends would in my opinion be appropriate in any contingency in which the special protective device was for any reason not available

Evacuated Hospital Patients

Miss Rathbone asked the Minister of Health whether any systematic review had been, or would be made, through the hospital or medical authorities or otherwise, of all the cases evacuated from hospitals to their homes at the beginning of the war, for the purpose of ascertaining whether they were receiving adequate medical and nursing attention —Mr Elliot replied All hospitals have been instructed to provide inpatient treatment for all in need of it, and if the medical advisers of patients requiring hospital treatment give a certificate to this effect the patients should be able to obtain admission to hospital, whether they are cases evacuated from hospitals to their homes at the beginning of the war or fresh cases In these circumstances I do not think it necessary to call for a special review

Feeding Centres for School-children

Mr Ridley asked the Parliamentary Secretary to the Board of Education whether he was satisfied that local authorities were making adequate provision to ensure that school children entitled to a free solid meal would continue to receive it —Mr Kenneth Lindsay replied I have no reason to doubt that generally speaking adequate provision is being made for the children in neutral and reception areas The position in the evacuation areas is more difficult because of the risks involved in the assembling of children , but if steps are taken to limit the number of children assembled at any one time and to provide suitable protection these risks can be reduced Certain authorities in the evacuation areas have already reopened their feeding centres with these safeguards, and I hope that others will see their way to do so

Miss Wilkinson Is it not a fact that there are 151 neutral and reception areas, and is it not therefore impossible for the children in the evacuated areas to be fed at school because no arrangements have been made by the Board of Education ?—Mr Lindsay Yes, we are urging that steps should be taken

Cheap Milk

Mrs Adamson asked whether local authorities would operate a scheme for the provision of cheap milk to those children now remaining in the evacuated areas who previously received it whilst at school —Mr Lindsay replied I should welcome a scheme under which children remaining in the evacuation areas could continue to receive milk under the milk in schools scheme There are, however, a number of practical difficulties—for example, as to the places at which children would be assembled for this purpose and the number who can safely be collected together —and until the question has been further explored I am not in a position to make any definite statement

Mrs Adamson If the local authorities can make satisfactory arrangements, will they be allowed to go on with their schemes ?—Mr Lindsay We are exploring at this moment with the Milk Marketing Board and other interested parties methods to satisfy the needs of the evacuation areas

Miss Wilkinson If the children are gathered together for education in certain numbers, what is to prevent them from receiving milk in those numbers ?—Mr Lindsay Nothing, but unfortunately they are not banded together

Teeth of Evacuated School-children

Mr McGhee asked whether any arrangements had been made for the provision of school dental treatment for evacuated school children in reception areas —Mr Lindsay replied The receiving education authorities are responsible for the working of the school medical service (which includes the school dental service) for evacuated children It is earnestly hoped that these children will be given the same facilities for dental treatment as are available for children who ordinarily attend schools in the receiving areas

Health Visitors in Reception Areas

Mr Parker asked the Minister of Health what steps had been taken to augment the number of health visitors in the reception areas , and whether any had been transferred from the service of the local authorities in the evacuated areas —Mr Elliot replied Steps for augmenting health visiting staffs are primarily a matter for the welfare authorities in the different areas to decide upon, having regard to local needs I propose to issue a circular giving advice to welfare authorities I have at present no particulars showing to what extent health visiting staffs have been transferred from evacuated to reception areas

Care of Expectant Mothers

Mr Thurtle asked the Minister if he would see that arrangements were made by the billeting officers or other authority responsible for regular visits to be paid to expectant mothers who had been evacuated to reception areas, in order that the special needs of these mothers might not be overlooked —Mr Elliot replied The normal public health services include the organised visiting of expectant mothers, and I am taking steps to ensure that such services are available in reception areas for evacuated women as well as for the ordinary population

A Tribute from the Minister

Replying to Sir R. GLYN, Mr ELLIOTT said he would like to pay a tribute to the vigour and good will with which the receiving areas were tackling the evacuation problem and to assure them that both in administration and in the development of policy their representations, notably on the difficulties of the reception of adults and the necessity for adequate medical examination of evacuated school-children, were receiving full weight.

Overcrowding in Scottish Reception Areas

Sir THOMAS MOORE asked the Secretary of State for Scotland whether, in the case of people who were receiving evacuees, local authorities were still enforcing the regulations against overcrowding; and whether he would consider suspending such regulations during the duration of the war.—Mr COLVILLE replied The standard of accommodation recommended to local authorities in billeting evacuated persons is generally more favourable than the overcrowding standard

Burning Pit Heaps

Mr. LESLIE asked the Home Secretary what progress had been made in the elimination of burning pit-heaps in mining areas.—Sir JOHN ANDERSON, replied: Burning pit-heaps are visited frequently by inspectors of the Ministry of Health and of the Department of Health for Scotland with a view to ensuring that the measures taken for quenching the fires are adequate Substantial progress has been made in the mining areas as a whole, and the latest reports show that in England fifty-five heaps, which were emitting some considerable glare, have been treated and are no longer openly on fire

LETTERS TO THE EDITOR

CONFLICTING EMOTIONS

SIR,—I have been watching sympathetically the reactions of some of our consultants to the tension of the last month, and reliving again the emotions of exultation, deflation, exasperation and financial anxiety many of us felt in similar circumstances in the last war. When the present war broke out we were led to expect furious air attacks on our great cities, and the Emergency Medical Service was rapidly improvised specially to provide against that contingency So far the lightning attacks have not happened. The improvised hospitals are empty. Their staffs in consequence are standing by idle, and, instead of feeling grateful for the respite, many who rushed in enthusiastically are now almost angry that nothing has occurred to make their services necessary —all very human and very illogical.

There is much grousing about the terms of service, complaints of square-pegging, complaints of inefficiency in high places, complaints of lack of equipment —much destructive criticism but little constructive help. Of course the terms of service are quite inadequate for anyone with the "overheads" of the Harley Street area; but are we not much better off in this respect than the members of the Stock Exchange, the proprietors of the big empty hotels and restaurants, the unfortunate people who run theatres, even the Bloomsbury lodging-house keepers who formerly catered for our medical students?

Of course there have been cases of bad staffing and inefficiency. Good men have been passed over for inferior ones Men who think their experience in the last great war might have been useful have found themselves ignored. That is inevitable in any great improvisation Also lack of equipment in one place, overplus in another, was bound to happen But let us be thankful we have had time to find out these defects, and so been given a chance to remedy them before the inevitable attack comes The framework of the emergency service has stood the test It is the details that require overhaul The closing down of both inpatient and outpatient departments of the great hospitals has been found to be a mistake That is being remedied. Shutting up the special hospitals was a great blunder. The staffs of some that refused to have their outpatient departments closed now find themselves working overtime at hospital Many of these are not on salary and consequently are rather inclined, perhaps a little unfairly, to resent the grumbles of their brethren living in outlying sector hospitals receiving Government pay for doing nothing

This war is going to be a long war, and what we all have to face is that everyone in the country will be the poorer for it. But as a profession we are fortunate in that everyone of us will be necessary, everyone will be required for service. We shall not suffer from that feeling of futility so many of our friends in other professions experience, for we are indispensable, and in this lies our privilege.

I am, Sir, yours faithfully,

J. JOHNSTON ABRAHAM

Queen Anne Street, W.1, Oct. 2.

SIR,—There must be many who saw some combatant service in the last war and who would face the same ordeal again in the present cause, but who shrink from contemplation of a repetition of the ghastly results of our last blockade on the infants and children of Central Europe Our blockade is just and necessary, but it is permissible to hope earnestly that those organisations in neutral countries that rendered medical aid on the last occasion to these stricken children will set their machinery in motion to render the same aid again at the earliest moment that it is required

I am, Sir, yours faithfully,

Oct 1 M. C WILKINSON

HICCUP IN OBSTRUCTION

SIR,—The following case is an example of intestinal obstruction in which the clinical picture was in some ways contradictory to the findings on laparotomy.

Mrs P., aged 30, three months pregnant, had had a uterine suspension and appendicectomy nine months previously. She had an attack of abdominal pain localised about one inch to the right of the umbilicus With this came diarrhœa, followed by constipation, without the passage of flatus. Vomiting started with the pain, and persisted for 48 hours, by which time the vomit was green Hiccup began after 24 hours and persisted. Two enemas were returned without result Temp. normal; pulse 80 Tongue moist. Abdomen a trifle full, but not more than could be accounted for by the easily palpable uterus, with local tenderness at the point where pain was complained of. Absence of distension suggested high small-bowel obstruction and persistent hiccup suggested peritonitis. At the same time her general condition was good, and there was no other evidence of peritoneal inflammation. Laparotomy showed obstruction of small bowel due to an adhesion in the right iliac fossa, which tore through on attempting to deliver the bowel. The raw area on the surface of the bowel was covered over and the bowel returned There was a large amount of free fluid in the abdomen The patient was smiling next morning and never looked back

If hiccup had not been present it is doubtful if laparotomy would have been done so soon The early laparotomy was certainly lifesaving, yet the condition discovered was *not* as severe as the hiccup led me to suppose I feel that it is in just such a doubtful case that the demonstration of free fluid by the detection of shifting dullness would have confirmed the tentative diagnosis

I *am*, Sir, *yours faithfully*,

Highgate N 6, Sept 30 W Lees Templeton

SIGMUND FREUD

A PERSONAL IMPRESSION

Dr John Rickman writes In Professor Freud two characteristics were present in the highest degree his friendly simplicity towards one as a human being, and the prodigious power of his mind The combination of these qualities made one feel to be in the company of a new kind of being—an ideal for human nature Freud accepted his transcendent intellectual gifts as a phenomenon of nature, a thing neither to be personally proud of nor of course concealed , they belonged as much to the universe as to himself Lesser men might have used such power for their own aggrandisement, but he was immune to the temptation because his protagonists were not his fellows but the obscurities in our human nature The confusion in man's mind was an affront to him and he set about to get to terms with his enemy Characteristically, and here he gave a lead to his followers and to the world, he turned first to the obscurity of his own mental processes, patiently exploring that seemingly chaotic and unprofitable region—the world of dreams He always referred to the results of this ten years of labour as a piece of good fortune that was not likely to come twice in a lifetime and seemed to be grateful to the generosity of nature for disclosing to him such valuable secrets He gave the rest of his life, from about forty onwards, to the detailed working out and consequences of the laws he had in fact himself discovered That such discoveries were changing the outlook of psychiatry, anthropology and sociology, giving a new understanding of the forces in art and religion, and indeed likely to change the mental outlook of the human race, were but evidences of his good luck to be in at the beginning of a new world of thought He knew full well the part he had played in bringing about the changes, but never forgot how small was his discovery compared to the infinity of detail and complexity into which some day order must be brought His unshrinking modesty before the vastness of Nature led him to measure the praise of men by a scale that fitted both to the framework of our knowledge and to the universe of our ignorance The application of this standard proved discomforting to flatterers, with whom he was not popular

A personal analysis in his hands was in the fullest sense of the word a joint undertaking He never moralised nor gave dogmatic instruction, but rather showed to the best of his ability what was going on at the moment in the mind and personality that was being studied He implicitly trusted in good results following from a greater understanding of what is present in human nature The human mind and human impulses were not of his creating and he found in them neither cause for self congratulation nor self reproach He studied them closely, patiently and with singular lack of prejudice Though intellectually so detached he was sensitive to every shade of emotional expression and feeling, and with this capacity for receptive understanding went patience which could afford to wait for the development of the best in those whom he held in affection Intellectual power and constructive imagination in such degree contained within a nature essentially gentle and patient was a revelation of the heights to which the human spirit can attain

---

Medical News

University of Oxford

Dr A M Cooke has been appointed assistant to the regius professor of medicine and clinical subdean to the medical school of the university Correspondence about clinical work at the Radcliffe Infirmary should be addressed to him there

University of Glasgow

On Tuesday, Oct 10, at 4 30 P M , Prof A J Ballantyne will deliver a lecture in the Tennent Memorial Building 38, Church Street He will speak on radiodiagnosis and radiotherapy

On Sept 27, the following degrees were conferred

M B , Ch.B.—A W Kay David Struthers and G C McKinlay (with honours), Andrew Muir, Andrew Allison W D Buchanan, H B Young C M Steven, William Blair H N Munro K R Urquhart, A H Lauder James Milne Alexina M Paterson, D G Wright and Isabella M Kerr (with commendation) G F Allan G R Anderson William Anderson Bernard Andrew, Janey C A Arnott, John Ballantine Hamish Barrowman, L S Bergius Abraham Berkovitch Jack Black Catherine I Blyth, Enid E Brackenbury, Alexander Brown Marrion A M Brown O T Brown William Brown Janet M Bruce, Margaret L Bryson, A M Buchanan, J R F Buchanan Murdo Buchanan Helen D Burns Margaret Callaghan H C Campbell, J L Campbell W R S Campbell Daniel Canning, Agnes E D Cathcart, Mirrlees R Chassels, Sidney Childs, Samuel Citron James Corbett R L Coulter, Lewis Couper, J M Crawford Muriel O H Cunningham J P Currie R G Dalziel Barbara M Davidson, Isabel Davidson P W M Davidson A. S Dawson Archibald Dick James Donaldson J L Douglas Henry Duff, H G Easton G M Edington R S Edington Henry Fairlie, John Ferrier Robert Finlay J W Fleming J U Forbes, J A Fraser, J F Mair Frew Marion S Gardner, Marjory A Garrey, W M Gibson, J G Gillan Janet B Grant, Sidney Haase H L Hart, Mary B Howat T K Howat J F K Hutton Jessie D Johnston W C Johnston L G Jubb, C. M Kesson A W Lees George Leslie Millicent H S Leslie Brenda F Linck Robert Livingstone W P D Logan John London, Jean M McArthur, J J McCall A I McCallum John McComb, F L F McConnachie J S McCrae A C Macdonald, I A Macdonald, T L Macdonald J L MacDougall H M Macfarlane I W Macfarlane I D Macfie, I G McGrath, W Q McIntyre A M McKelvie, W B McKenna W R Mackie C M McLean Angus MacLellan Iain McLennan J A MacLeod R G MacLeod Helen M McNeish P F Maguire D S Mair K C Matheson H J B Miller R I Mitchell Robert Montgomery, G C Murray Margaret K Murray Robert Murray J C. Mustardé, R S Patrick Robert Paul David Raeside Edgar Rentoul, W D Richardson, Mary M Richmond, W. D Ritchie R B G Robertson N O Rodger John Rogers A. M. Roy, David Salamon John Scobbie Dorothea H Graham Service Francis Shaw James Simpson J C Simson J G Smith Jean M Smith Peter Sommerville William Steele Elizabeth M Stephen Mary Sullivan J D Thomson Janet Todd, J [illegible] Totten J A Urquhart Robert Waddell, E M Waldman, A [illegible] Walker, R T B Watson Jack Weir W P Weir Margaret [illegible] Wells Janet C Willock, Margaret F Wilson R. M [illegible] Wood, Marion T Wright Eileen S M Wybar, and A. [illegible]

Emergency Notices

The committee of the Albany Club, of 3, Savile [illegible] W 1, would like to extend the privilege of [illegible] membership to doctors engaged on war work, [illegible] those at the London emergency war hospitals [illegible] men or their wives wishing to take a [illegible] should write to the secretary

The Hungarian Postgraduate Com[illegible] the international postgraduate course [illegible] and rheumatology to have been held in [illegible] is postponed.

King Edward VII's Hospital [illegible] removed from 17, Grosvenor C[illegible] Hoo, Luton Beds (telephone [illegible]

The editors and publis[illegible] Co) of the quarterly re[illegible] Sir Ronald Ross in 1907 [illegible] number publication will [illegible] research are more fav[illegible]

London Homœopathic Hospital

The times of the lectures at this hospital have been altered. Dr. C. E. Wheeler's lectures in medicine will be given on Mondays and Thursdays at 2 P.M., beginning on Oct. 16. Sir John Weir will lecture on Fridays at 2 P.M. from Oct. 13. The tutorial classes of Dr. Douglas M. Borland will be given on Fridays at 3 P.M., beginning on Oct. 13, and the clinical tutorials of Dr. W. W. Rorke on Mondays and Fridays at 11 A.M. in the outpatient department. Dr. C. Granville Hey will give an introductory lecture on Oct. 12 at 2.30 P.M.

Foot-and-Mouth Disease Research Committee

Mr. Ian Galloway, D.Sc., M.R.C.V.S., has been appointed scientific superintendent of research at the committee's experimental research station at Pirbright. Dr. Galloway has been attached to the department of experimental pathology and bacteriology of the National Institute of Medical Research since 1926.

Royal Society of Tropical Medicine and Hygiene

Sir Rickard Christophers, F.R.S., will deliver his presidential address to this society on Thursday, Oct. 19, at 4.30 P.M. He will speak on malaria in war. The meeting will be held at the house of the society, 26, Portland Place, London, W.1.

Medical Society of London

The annual general meeting of this society will be held at 11, Chandos Street, W.1, at 5.15 P.M., on Monday, Oct. 9. At 5.30 P.M., Mr. Zachary Cope will deliver his presidential address. He has chosen for his subject the Profession of Surgery.

Royal Society of Medicine

Sir Walter Langdon-Brown will give his presidential address to the section of the history of medicine on Wednesday, Oct. 4, at 2.30 P.M. He will speak on W. H. Gaskell and the rise of the Cambridge school. On Tuesday, Oct. 10, at the same time Sir William Willcox, the new president of the section of therapeutics and pharmacology, will give his address on pharmacy and pharmacology.

London School of Hygiene and Tropical Medicine

The office and certain departments of the school are to remain for the present in Keppel Street. Courses normally lasting an academic year have had to be discontinued for the time being, but it is hoped in the near future to provide short courses of instruction in tropical medicine and hygiene. The school library will be open between 10 A.M. and 5 P.M. (Saturdays 10 A.M. and noon), and the librarian will be glad to answer inquiries by post or telephone.

Ligue internationale contre le rhumatisme

Owing to the war the league will no longer be able to carry out its activities. Its bureau at Keizersgracht 489, Amsterdam, will be closed.

WAR-TIME UNIVERSITY ARRANGEMENTS

UNIVERSITY OF BIRMINGHAM.—As far as possible, the Birmingham medical school intends to carry on both preclinical and clinical training. A first-aid course has been arranged during the first term's anatomy and physiology. When summer-time ends on Nov. 18, the courses will have to be restricted so that all students may reach their homes or lodgings before nightfall.

At the moment most clinical students are living in, or are billeted around, those hospitals which are to be used for casualty work. The commandants of each of these hospitals are coöperating in the scheme for the continued education of the students.

Apart from a few individuals who find it more convenient to complete their course near their own homes in Birmingham rather than in London, no large group of students from other schools are being trained at Birmingham.

UNIVERSITY OF LIVERPOOL.—The university has not accommodated students from any other school, but has admitted a few from outside schools for clinical work.

UNIVERSITY OF SHEFFIELD.—About 37 women students from University College, London, will attend classes in physiology and anatomy for the London 2nd M.B. exam. They will be accompanied by their own teachers and accommodation for nearly all will be found in university hostels.

Recently, urgent civilian cases have been admitted to the hospitals and clinical teaching has recommenced. All medical and surgical cases have been pooled for teaching purposes and physicians and surgeons are now able to teach on cases not necessarily under their own care. Six members of the staff have already left the university for full war service including the dean of the faculty of medicine.

Arrangements have been made for teams of clinical students to attend at various first-aid stations in the hospitals as soon as the "all clear" signal sounds after an effective air-raid on the city.

UNIVERSITY OF EDINBURGH.—Preclinical subjects will be taught as before in the university buildings and the clinical subjects in the hospitals, although modifications may be necessary.

Many of the junior members of the staff will not be available for teaching, owing to service commitments, but the senior staff will, to a large extent, be available. No visiting medical schools have been accommodated.

UNIVERSITY OF GLASGOW.—It is proposed to maintain the activities of the medical school as near normal as possible. The adoption of the six years' curriculum has been postponed. Eight of the less senior members of the teaching staff have gone to full-time military duties. There may be further depletion.

UNIVERSITY OF ST. ANDREWS.—It is intended to continue the medical curriculum as far as possible on normal lines. Preclinical instruction will be given both in St. Andrews and Dundee. Clinical teaching will be carried on in the Dundee Royal Infirmary, the municipal general hospital at Maryfield, and the municipal fever hospital at King's Cross. A number of the younger members of the staff who had territorial commitments have now gone.

The university is having as guests the first year of the Royal Free Hospital, London, who are having instruction at St. Andrews.

UNIVERSITY OF ABERDEEN.—The work of the university will be little affected by evacuation, for Aberdeen is a neutral area. Some non-medical students of military age will be called up, but the medical faculty will be enlarged by the addition of 130 second and third year students from the London School of Medicine for Women. Many of the teaching staff have gone on service but no difficulty is expected in carrying on the usual courses.

UNIVERSITY OF WALES.—At the Welsh National School of Medicine at Cardiff teaching is continuing, and the clinical side will have at least 400 beds to start the new session in October. Modifications include outpatient sessions in the mornings and the greater use of the institutions of the Cardiff City Corporation for clinical teaching. Some of the teaching staff are already on active service, and some retired senior members are returning, among them Emeritus-professor S. Lyle Cummins, who will probably help in the pathology department, and Mr. A. W. Sheen, former professor of surgery. Among the residents, women will to some extent take the place of men.

The school is receiving 60 students in their first clinical year from University College Hospital. A building is being secured as a satisfactory hostel for these students.

The preclinical departments of the school are in University College, Cardiff, and the college is receiving 100 anatomy and physiology students from University College, London. All students from outside will be accompanied by their own teachers.

GUY'S HOSPITAL DENTAL SCHOOL.—This school is to reopen on Nov. 1 at Sherwood Park Clinic, 1½ miles from Tunbridge Wells. Provision is being made for students in all stages of their course, including premedical students. There will be a subsidiary clinic in which conservative work, extractions and prosthetic work will be carried out actually in Tunbridge Wells. Accommodation will be provided in the school for some of the students at a cost of 50s. per week for board and lodging. Further particulars may be obtained from the sub-dean, Guy's Hospital Dental School, London Bridge, S.E.1.

There will be no meetings of the Harveian Society until further notice.

AT THE FIRST-AID POST

A MEMORANDUM for the guidance of medical officers and other personnel at first aid posts[1] has been issued by the Ministry of Health It expands the typewritten notes provided at the end of August[2] and retains the somewhat desultory form of the original, some paragraphs being evidently addressed to the layman and others to the doctor The function of the first aid post is defined as (1) to treat and send to their homes the slightly injured and those suffering from nervous shock, and (2) to arrest hæmorrhage, relieve pain, and so prepare those casualties who may be found to need institutional treatment that they can be transferred to the casualty (receiving) hospital with the least possible harm The memorandum forms a supplement to the regular first aid manuals, laying emphasis on facts and advice likely to be of special importance, including the immediate treatment of injuries of the head, the jaws, and the chest, and of emotional disorders It concludes by reproducing Mr P H Mitchiner's useful table showing the dosage of opium appropriate for the relief of pain when cleansing burns in children and adults In general, however, it is not recommended that such cleansing should be attempted at the first aid post A picric acid dressing, applied moist to a burn, will not interfere with the efficiency of tannic acid treatment later

. . IN ENGLAND—NOW

ONE of my recent house-physicians came to see me yesterday, resplendent in new naval uniform He finds himself with a good deal of time on his hands, and he asked me to give him a list of books "for serious reading, and appropriate to the times" Knowing something of his mind, I felt that he would like to brood on the answer to the question, "How do we stand now in relation to the broad sweep of history?" So here is my list

"A History of Europe," by H A L Fisher—to give a sense of proportion

"The Making of Europe, 400 to 1000 A.D," by Christopher Dawson—a history of another dark age, when the foundations of Europe were laid in fear and weakness and suffering

"Reflections on the End of an Era," by Reinhold Niebuhr, and two small books by Nicholas Berdyaev, "The End of our Time," and "The Fate of Man in the Modern World"—all three with a steadying, big grasp of the signs of the times

"Les Grands Cimetières sous la Lune," by Georges Bernanos—the reflexions of a wise, catholic mind on the Spanish tragedy and its wider background

And finally, the Books of Isaiah and Jeremiah—this is very ancient history, but it is the *nature* of history to be constantly repeating itself And a story of long ago has the advantage over our present experience in that it has been told to the end and its prophetic principles have been tested by the final issue Written in times of intense historical crisis, they are the flower of an unconquerable faith, and of a vision of history seen *sub specie aeternitatis*

• • •

It was my elderly cousin that introduced the subject of vermin There was some excuse for her, for she had always lived in a country town, whereas the other two were Londoners born and bred I was glad to have read *The Lancet* on nits and informed them that "statistics showed" that, so far from London children being infested by pediculi more than country ones, they were rather less so I had to admit to selected cases "Yes," said my cousin, "but can't you see how dreadful it must be for such a child to be introduced into a beautifully clean village home?" "Granted," said I, "but can't you also see how terrible it is for one of our clean Bermondsey children, where the rate is lowest, having to go into a dirty cottage?" The problem is a difficult one, for even with the Bermondsey figure of 0 8 per cent, there are among 600,000 children some 5000 being added to those already affected in the countryside and provincial towns In dealing with the problem it is necessary to gain the goodwill of the patients, and no suggestion of shame or naughtiness must be raised within their breasts nor should any strong words be used It was thus the soldier met the problem when he called himself "chatty" "Lousy" is a word that is loathsome to me, as it is, I believe, to most of my generation Some years ago one of the most brilliant of my juniors described some minor point of maladministration as being "absolutely lousy" I took him aside and said to him, "I will admit that things are not as they should be, but I do not think you need as strong a word as that 'P—y' perhaps, or even 's—y,' but hardly 'lousy'" He stared at me open-eyed, and I added, "If I used either of those first two words in a mixed company in the presence of the nurses, you would think me a dirty old man" "Yes, sir," he admitted, "I should" "Well, then," I said, "remember that to those of my age, who have been there, your word is even worse" Even the official or parliamentary word "verminous" should be avoided Shortly after my return from the war I found that a child at my school clinic had pediculi and I said to the mother, "I am afraid your little one has some of them things" "Oh, doctor," she said, "I know and I've tried hard to get rid of them, combing 'er 'ead and all" "Well," said I, "we'll try to help you if you will take her to those nice medical baths" For the necessary arrangements I passed her on to the administrative official This was an austere woman already in middle age, and I heard her say to the poor mother, "Woman, your child is verminous I am sending her to the cleansing-station" I leaped to my feet, crossed the room, and told her she was never to speak to one of my patients so She told me she was only using the official language I replied that I would not have anyone in my clinic who spoke like that She replied that I should have to have her A tactful sister came and settled us down—temporarily, for the point was left unargued However, the lady settled it that evening by going down with appendicitis When she recovered she returned to the service and, I believe, is still in it, though she has never again worked in any part of the county near where I am employed The point is that in dealing with "them things" you must have the patient, and her mother, with you and not against you

• • •

Newcastle is an evacuated town Two thousand hospital beds stand empty But some of us have insisted on keeping our ward work going We made a brave gesture to keep an appeal going too It had reached £110,000 Now the city council are discouraging it, but we shall go on as best we can We shall hold the medical school and teaching together, but these inhibitory influences from Whitehall weaken peripheral movement

Why is it that if one asks a simple question about sick people of the Ministry of Health after a few days one gets a reply beginning—"The Minister has considered this matter and requests me to point out" Surely this formula deceives no-one, it is a mealy-mouthed shifting of responsibility, and a waste of time and typescript Far away at the periphery of the ministerial spider's web, we feel more caught up than you at the centre As the hierarchy spreads down from its Whitehall apex direct responsibility gets less and less Each query has to percolate through to the pundits and on its return clothe itself in circumlocution so that no-one may misunderstand or even understand its meaning Is it enough to say

---

1 Emergency Medical Services Memo. No 4 H M Stationery Office 1939 Pp 14 3d

2 See *Lancet*, Sept 2, 1939, p 578

that everyone is *doing his best?* Unfortunately some people's best may not be good enough. In this new and rapidly built administrative machine we have not had time to sift out those "born" administrators, who in the past have found more financial profit and mental satisfaction in the practice of medicine than in government service. In an emergency the niceties of civil service procedure must be forgotten. Inefficiency as well as senility must be made a ground for retirement. And the best men must get the best jobs, no matter how many staid and sober *officials have to be* passed over

Now for a pre-war flash-back. We had a lovely holiday at Rosenlaui up from Meiringen At last I have found my ideal Swiss holiday place We came away saying here we shall return year after year. We took in Zurich on the way back, to look at the exhibition. I thought it would be nothing but a good sideshow for the children, but it took my breath away. I do not know what quintessence means, but if it means what I think it means, the Zurich Exhibition was the quintessence of human ingenuity and intelligence. Here was a civilised achievement beyond anything I had imagined.

We came home by Germany and stayed a few days in Freiburg. I wanted the children to see that not all Germans carry bombs in their hands, so if we have to face a few years of public falsehoods there are at least *four English children who will cherish a memory* of a few happy days spent with a lovable southern German family. Coming home I got into trouble near Frankfurt. No petrol to be had, and there I was a hundred miles from the border at Aachen. Alles verkauft or leer on every petrol pump—and no civilian cars to be seen. Germany mobilised and thousands of military waggons on the roads. Here and there we got petrol by kindness, and when at last I felt secure with sufficient in the *tank to* carry me *to* the Belgian border we loitered for a fine August day in Bonn. We bought plums in the *market-place* at a penny a pound and saw Beethoven's monuments. And so to Antwerp quay, where all was chaos

But you probably want to hear about evacuation, A.R.P. and first-aid posts in a "vulnerable" town. That I believe is the official designation for Newcastle —although Wallsend with its 60 or 70 thousand inhabitants, next to Newcastle and nearer the mouth of the Tyne, is neither "vulnerable" nor "evacuated." The Ministry of Health is encouraging us to spend in Newcastle in salaries alone, on our first-aid posts only, £300,000 a year. This is demoralising. England is finished if its citizens cannot undertake the first-aid care of their fellows without these bribes But I may be wrong. I often am.

Vacancies

Bedfordshire County Council —Asst M O H Maternity and Child Welfare, £500

Brighton, Sussex Maternity and Women's Hosp —Res. H.S , £130

Burnley County Borough —Asst M O , £850.

Cambridge, Addenbrooke's Hosp.—H P , at rate of £130

Cardiff, King Edward VII Welsh National Memorial Assn —Res M O for Adelina Patti Hospital, £350

East Sussex County Council —Deputy M O H and deputy school M.O , £850

Epsom College —Council Exhibitioners, each £75

Greenwich Metropolitan Borough —Tuberculosis officer for Council's Dispensary and deputy M O H , £750

Harrow Urban District Council —Asst M O H , £600.

Hertfordshire County Council —Assist tuberculosis officer, £500

Huddersfield Royal Infirmary —H P , at rate of £150

Manchester City.—Asst tuber officer £650

Nottingham General Hospital —H S for Orthopædic and Fracture Dept , at rate of £150

Oldham County Borough —Asst school M O and asst M O H , £550.

Oxford, Exeter College.—Staines Medical Research Fellow, £400

Plymouth City General Hosp —Asst M O £300

Rochdale County Borough —Res M O., £350

Sheffield Children's Hospital —H S , at rate of £100

South Shields Maternity Hospital —Asst Res M O , £350

Stoke-on-Trent, North Staffordshire Royal Infirmary —Hon radiologist

Walsall Manor Hospital.—Jun Asst. M O , £150

Wolverhampton Royal Hospital —Res anæsthetist, at rate of £200.

Medical Referee under the Workmen's Compensation 1925, for the county-court districts of Bradford, Keigh Otley and Skipton (circuit No 12). Applications to private secretary, Home Office, Whitehall, London, S.V before Oct 23

The Chief Inspector of Factories announces vacancies examining surgeons at Shipston-on-Stone, Warwick, Wooler, Northumberland.

Appointments

McLAREN, R G A, M D. Aberd , B Hy , D.P M , deputy med superintendent at the County Mental Hospital, Whitti ham, nr. Preston.

MARIENFELD, O W, M D. Rostock, L R C P E , D P H., ass ant medical officer (tuberculosis) for South Shields

Examining Surgeon under the Factories Act, 1937: Dr DA **FERGUSON** (St Blazey district, Cornwall)

Births, Marriages and Deaths

BIRTHS

BURNHAM-SLIPPER—On Sept 27, at Southsea, the wife of C N Burnham-Slipper—a son

CHEVERTON—On August 13, at Belize, the wife of Dr R. Cheverton, senior medical officer, British Honduras daughter

CURRANT.—On Sept 29, at Haslemere, the wife of Dr E Currant—a daughter.

PIRRIE—On Sept 29, at King's College Hospital, the wife Dr Denis Pirrie—a son

ROQUES.—On Sept 29, at Wendover, the wife of Squad Leader F W. Roques, F.R C S —a son

SNELL—On Sept 26, at Bishopstone, Bucks, the wife Surgeon Lieutenant T. Snell, R N V.R —a daughter.

MARRIAGES

BALCH—GIBSON.—On Sept. 30, at Wallington, Hubert Will Balch, M B., to Joyce Gibson

GRAHAM—JAMES—On Sept 8, at Nathia Gali, Captain Geo Kenneth Graham, M B , I M S , to Nancy James, of Lit hampton

RIDYARD—WALKER—On Sept 1, at Sharrow, John Middle Ridyard, M B., of Chesterfield, to Frieda Gwenllian Walk of Sheffield

TALBOT—BETTS—On Sept 28, at St. John's Wood, Lieu Colonel Graeme Gibson Talbot, F R.C S , R.A M C , Joan Betts

TAYLOR—CLIFFORD.—On Oct 3, at Jordans, Beaconsfie Stephen James Lake Taylor, M.D , M R C P., to May Do Charity Clifford, M B

ZUCKERMAN—ISAACS—On Oct 2, in London, Solly Zuckerm M R C S , to Lady Joan Rufus Isaacs

DEATHS

ALLISON—On Oct 1, at Kettering, John Allison, M D Edi F.R C S E , D P H , late medical officer of health, Ketteri aged 76

COMRIE—On Oct 2, at Edinburgh, John Dixon Comrie, M Edin , F.R C P.E , aged 68

COOPER—On Oct 1, at Surbiton, George Frederick Coop M B Lond., aged 78

COTTON—On Sept 28, at Canterbury, Charles Cotton, O B F R C P.E , Knight of Grace of the Order of St John Jerusalem, aged 83

DAVENPORT—On Sept. 11, at Melbourne, Arthur Frederi Davenport, M B Lond

FAWCETT—On Oct 2, at King's College Hospital, Mary Nol Fawcett, M.R C S , of Tonbridge, aged 32

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDI SEPT. 16, 1939

Notifications—The following cases of infectio disease were notified during the week: Smallpox, 0 scarlet fever, 1139; diphtheria, 823; enteric feve 77; pneumonia (primary or influenzal), 260, puerpera pyrexia, 153; cerebrospinal fever, 15; poliomy elitis, 29; polio-encephalitis, 2; encephalitis letha gica, 3; dysentery, 34; ophthalmia neonatorum, 6 No case of cholera, plague or typhus fever was notifie during the week.

Deaths.—In 126 great towns, including Londo there was no death from smallpox, 3 (0) from enter fever. 2 (0) from measles, 3 (0) from scarlet feve 6 (2) from whooping-couch, 28 (1) from diphtheri 18 (4) from diarrhœa and enteritis under two year and 10 (0) from influenza The figures in parenthese are those for London itself

Wakefield reported 2 deaths from typhoid, Stockport Birmingham had 2 deaths from whooping-cough Fatal cases diphtheria were scattered over 19 great towns, Liverpool an Birmingham each reporting 3, Stockport, Stockton-on-Tee Sunderland, Leicester and Plymouth each 2 Liverpool had deaths from diarrhœa, Birmingham 5

ADDRESSES AND ORIGINAL ARTICLES

BACTERIOLOGY OF RHEUMATIC FEVER

By W R F Collis, M D Camb F R C P, F R C P I, D P H

PHYSICIAN TO THE NATIONAL CHILDREN'S HOSPITAL AND PÆDIATRICIAN TO THE ROTUNDA HOSPITAL, DUBLIN

A study of the bacteriological investigations into the cause of rheumatic fever during the last fifty years is interesting from many points of view It is even slightly humorous sometimes, if one is permitted to regard such a subject ironically Every worker who has studied the manifestations of the rheumatic fever has come to the conclusion that it must be caused by a demonstrable germ, fulfilling Koch's postulates I propose here to review the literature of the more reliable of these workers and to add the results of some experiments of my own, the importance of which has only recently become apparent

BACTERIOLOGICAL RETROSPECT

Before the beginning of the century Wassermann and his co workers (1899) had found an organism in a blood culture from a patient suffering from rheumatic fever, but they could not repeat their work, nor could anybody confirm it Then Poynton and Paine (1900, 1913) entered the field They isolated a diplococcus in blood and other cultures, injected it into animals and produced carditis and arthritis They claimed that they had found the specific germ of the disease Careful study of their pathological material and control experiments, however, showed that though they had produced carditis and arthritis, it was not rheumatic but infective Although its central hypothesis was disproved, their work was extremely important in that they studied the disease minutely, and many of their observations were invaluable to those who came after Most important of all was their observation that acute streptococcal pharyngitis almost always preceded an attack of rheumatic fever The war years put an end to this work and when in 1920 investigators were again in a position to take up the subject, Paine was dead, the diplococcus lost and Poynton unwilling to start all over again Hence the diplococcus of Poynton and Paine has never been examined and classified by the new methods now in use and we shall never know definitely what sort of streptococcus it was, though the general impression is that it belonged to the viridans group

The post war workers went back to the old method of blood culture with modifications Bertrand (1928), for instance, in Antwerp by anaerobic culture of a large number of bloods in his very unusual laboratory, isolated a strange gram positive bacillus which he claimed would change into a streptococcus if treated in the right way (Later, following his directions on a culture he sent me, I found that it certainly broke up into coccoid forms but that it required more imagination than I possessed to call it a streptococcus) He claimed that his organism was the same as that formerly called Achalme's bacillus but suggested that a better name would be "the diplostreptobacillus of rheumatism" He said it was similar to the *Bacillus welchii*, but did not state why However, in some way one of his co workers obtained a troup of Voronoff's castrated anthropoid apes, whose glands had already been used to rejuvenate the failing functions of elderly epicures and injected them with the organism Later he photographed these most unhappy creatures to demonstrate the crippling arthritis he had produced and proclaimed that *he* had found the causative organism of acute rheumatism Undeterred by the scepticism of his colleagues he produced a vaccine which has been used most successfully in the Low Countries for all forms of rheumatism, acute and otherwise Bertrand has had only one serious rival in Europe, Professor Löwenstein (1931, 1932) of Vienna, who claimed to be able to find tubercle bacilli in large numbers of blood cultures from rheumatic and other conditions He caused us a lot of trouble till Wilson, Schwabacher et al (1933) found acid fast bacilli inside most laboratory taps (We supplied Schwabacher with fourteen blood cultures from rheumatic-fever patients)

During this period American workers were not idle Small (1927) isolated a diplococcus from a blood culture which he claimed was the same as Poynton's and Paine's His work was not confirmed He also made a vaccine Birkhaug (1927) isolated a strange organism which he called R F 1 B It was somewhere between a streptococcus and a staphylococcus It autolysed itself rapidly in broth-culture and produced a potent toxin of some kind, which gave a number of us high temperatures and pains when we injected ourselves with it to see its action

Then came the work of Nicholls, Cecil and Stainsby (1929) They obtained non hæmolytic streptococci in about 50 per cent of their blood cultures by incubating them for four to six weeks This extraordinary claim made many workers, including myself, feel that their work must be confirmed if possible, and an enormous number of blood cultures were carried out by Swift at the Rockefeller Institute, Coburn at the Presbyterian Hospital and myself at the Hospital for Sick Children, Great Ormond Street Apart from the 14 sent to Schwabacher, already referred to, I did 130 blood cultures using every imaginable technique, including Bertrand's anaerobic method In over 70 cases the cultures were kept for over five weeks These were subcultured in a sterile room, in a sterile cupboard behind a glass screen into which only the operator's hands protruded The methods we employed proved satisfactory in all ordinary cases of septicæmia, such as infective endocarditis In the rheumatic cases we grew viridans streptococci from 3 and diphtheroids from about 20, usually after at least ten days incubation The latter organisms were not the ordinary skin or nasal diphtheroids but grew with difficulty in minute colonies and had no effect on the sugars and appeared quite non pathogenic They grew from control bloods as well as those of rheumatic cases I assumed that they were of no importance and considered my 144 blood cultures to have proved nothing I never wrote them up

Then a new worker, Callow (1933), reported from Park's laboratory in New York She did hundreds of blood cultures by the same prolonged incubation technique She also found these diphtheroid forms in rheumatic cases and from cases of pharyngitis and measles She claimed that they were degenerate streptococci of different groups and could be changed back into their original forms by certain culture methods I sent her my diphtheroid cultures and she sent them back as streptococci Her paper was not only one of the longest, but one of the most carefully checked I have ever read She did hundreds of animal experiments, and produced agglutinins which would agglutinate a certain streptococcus and its diphtheroid form Non germinating potato was one of the essential ingredients in her culture media I tried to confirm her work She came to Ireland and we tried together again and again. But neither the streptococci would change into diphtheroids nor the diphtheroids into streptococci in Ireland Perhaps it was because germination of all kinds tends to continue all the year round in Ireland and the potato proved no exception to the rule She went away and although I kept the cultures going on her media for another year nothing happened. I gather that Swift and Coburn were no more successful than I

More recently filter-passing viruses have been coming in for study and several observers have claimed to have isolated them Signy and Amies, for example, obtained virus-like bodies from exudates supplied by Schlesinger (1935) But up to the present their work is conflicting and various workers have failed to confirm each other.

It must be admitted therefore that the blood-culture line of approach to the problem of rheumatic fever has proved an unhappy one for all workers. And animal experiments have proved as barren as the blood-cultures More than twelve different types of animal have been injected with every sort of material from patients with rheumatic fever without producing the disease experimentally

On the other hand epidemiological and immunological studies have thrown much light upon the ætiology of the disease. Glover (1930) described epidemics of tonsillitis occurring in semi-isolated communities. He showed that the peaks of these epidemics were followed after a period of two weeks by the peaks of rheumatic fever. Schlesinger (1930) confirmed and enlarged the observation made long ago by Haig-Brown (1886) that there was a silent or incubation period of ten to twenty days between the acute pharyngitis and the subsequent rheumatic fever. His charts in cases of rheumatic relapses were most convincing and his work was confirmed by Sheldon (1931) I found that the organism causing the acute pharyngitis was invariably a hæmolytic streptococcus (Collis 1931) Meanwhile Coburn (1931) working in America had published his famous work in which he brought together an enormous number of facts in support of his view that the hæmolytic streptococcus was the causal organism of rheumatic fever The early epidemiological work of Bradley (1932) also confirmed these views Todd (1928) and later Coburn (1935) and Bradley et al (1939), all working separately, produced much immunological data (anti-streptolysins, precipitins, and so on) indicating the close association of the hæmolytic streptococcus and rheumatic fever. It was clear however that if the organism was the infective factor, it must be shown to be acting in a new way, different from any already known So far there is a good deal of evidence to support the theory that the disease is caused by an antigen-antibody reaction occurring in certain people born with or acquiring the rheumatic diathesis Many believe this view, but others still cling to the belief that a specific virus (probably filter-passing) will eventually be found All serious students of the disease, however, now agree that certain toxigenic hæmolytic streptococci play a definite part in the disease; if they are not the sole infective agent, they must at least be regarded as the activators of the disease both in its primary attack and secondary relapse.

POST-MORTEM CULTURES

While engaged upon the blood-culture and epidemiological work mentioned above, I also studied all possible morbid material from rheumatic-fever post mortems, in all seventeen. The bacteriological findings at these post mortems were startling and appeared so contradictory and difficult to understand that I decided not to publish them till I had an opportunity of controlling them more carefully and checking them with another technique Circumstances made it impossible for me to carry out these control experiments Hence these records were never published. Recently, however, Green (1939) has published his findings on nine autopsies performed in the department of bacteriology at Edinburgh on patients dying in an acute or subacute phase of rheumatic fever. His work appears to have been done with meticulous care, but his findings are, to say the least, extraordinary. In eight cases out of nine he has cultured hæmolytic streptococci from the heart valves of these patients. He grew these organisms from fourteen valves which showed recent valvulitis, but from none which did not. The organism was never found in the heart-blood In three cases, he also cultured the same organism from the pericardium In five cases, the organism in the valves at autopsy was the same ætiological type as that obtained from the throat during life These results are very hard to explain but are clearly of the utmost importance I therefore feel it is my duty to all workers in the field to publish the results of my autopsies without further delay, in spite of the fact that I have not yet been able to do the control experiments planned

Below I present the technique and a summary of the relevant autopsy findings on seventeen patients dying of acute rheumatic fever. I must mention that hundreds of sections were cut, and all cases showed typical rheumatic carditis and no evidence of ulcerative endocarditis

TECHNIQUE

The autopsies were performed as soon as possible after death; in several however the interval was as much as 48 hours. It was necessary to do the autopsies where the patients died; consequently it was not possible to make the sterile precautions as complete as I wished. The method was as follows. The thorax was opened and immediately cultures were made from pericardial fluid and heart-blood. A searing iron was used to sterilise the surface of the pericardial sac and of the heart-muscle before a sterile glass pipette was pushed through and some fluid withdrawn. Next the pharynx was taken out, and the tonsils, if present, removed and placed on sterile glass plates and covered up. Cervical and mediastinal glands were also removed and placed on sterile plates. The whole heart was then cut out, covered with a sterile cloth and placed in a sterile bowl. All the specimens were removed to the laboratory where cultures were made using the following method: glands and tonsils were placed in spirit, flamed till their surfaces were coagulated, and cut across with a sterile scalpel; platinum loopfuls of matter from their interior were spread on blood-agar plates and inoculated into tubes of broth. The hearts were seared with hot iron and opened with sterile instruments, the valves cut out, washed in spirit, flamed, cut up and cultured direct on blood-agar and inoculated into broth tubes.

Sixteen of the seventeen autopsies described here were performed on subjects dying in acute relapses of rheumatic fever. Some had only been acutely ill a matter of weeks, others for one to six months. In many, acute hæmorrhagic pericarditis was found, and in most recent endocarditis and valvulitis In only one could it be said that the child died simply from heart-failure due to gradual decompensation.

RESULTS

If the table is studied it will be seen that hæmolytic streptococci were found in (a) 14 out of 15 tonsils

RESULTS OF POST MORTEM CULTURES FROM CHILDREN DYING OF ACUTE RHEUMATIC CARDITIS

Case no	Heart blood	Pericardial fluid	Splenic pulp	Tonsils	Glands			Valves			
					Cervical	Ant mediastinal	Post mediastinal	Mitral	Tricuspid	Aortic	Pulmonary
1	Sterile	Sterile	Sterile	Staph	Sterile	Sterile	Sterile	Sterile	Sterile	Sterile	Sterile
2	Sterile	Sterile	Sterile	H S + V S + Staph +		Sterile	Sterile	H S + *B coli* +	Sterile		
3	Sterile	Sterile	Sterile	H S ++ V S + Pneum	V S + Staph			Sterile	Sterile		
4	Sterile	V S +	Sterile	H S ++			H S ++	H S +++	1 col H S		H S +++
5	V S ++	V S +	H S ++ V S +	H S ++					H S ++ V S +	H S + V S +	
6	Sterile			H S ++	H S +	H S +	H S +	H S ++	H S + V S +	H S +	
7	Sterile	Sterile	Sterile	H S ++ V S +	V S +			V S +	V S +	V S +	
8	Sterile	Sterile	Sterile	H S ++	Sterile			Sterile	Sterile	Sterile	
9	Sterile		Sterile	H S +				H S +	Sterile		
10	Sterile	Sterile		H S ++				Staph +	Staph +	H S + Staph +	
11	Sterile	Sterile	Sterile			Sterile	Sterile	H S ++	Sterile	H S ++	
12	V S +	H S + V S +	Sterile		Contaminated				G S +		
13	Sterile	Sterile	Sterile	H S +++		H S +++	H S +++	Sterile			
14	V S +++	V S +++	V S ++	H S ++	H S +	H S ++	V S +	H S + V S +	H S + V S +	H S + V S +	
15	Sterile	Sterile	Sterile	H S +++		H S ++ Staph +		H S ++ V S +			
16	Sterile	Sterile	Sterile	H S + Staph +		H S ++	H S ++	H S ++	H S ++		
17	Sterile	V S +	Sterile	H S +	H S +++	Sterile	H S ++	H.S 1 col	H S ++		H S + Staph +

Staph = Staphylococci Pneum = Pneumococci H S = Hæmolytic streptococci V S = Viridans streptococci
G.S = Gamma streptococci

Remarks

Case 1—Child died within ten days of severe relapse acute hæmorrhagic pericarditis little or no endocarditis

Case 3—Acute pericarditis, myocarditis and Aschoff reaction acute recent valvulitis

Case 4—Death after acute rheumatic relapse Culture from subcutaneous nodule on elbow grew one colony H S

Case 5—Death after acute rheumatic relapse, following acute H S tonsillitis, acute general pancarditis

Case 6—Recent acute rheumatic relapse pancarditis pericardial space obliterated, recent acute valvulitis

Case 7—Fatal relapse followed acute H S tonsillitis acute pancarditis

Case 9—Relapse following H S tonsillitis acute rheumatic pancarditis

Case 10—Acute pancarditis, pericarditis very marked recent valvulitis

Case 11—Acute pancarditis following H S pharyngitis, *recent valvulitis*

Case 12—Recent pancarditis recent pericarditis and valvulitis

Case 13—Pericarditis, no recent valvulitis

Case 14—Acute rheumatic relapse following H S tonsillitis, pancarditis, very recent valvulitis

Case 15—Pericarditis recent rheumatic valvulitis Gram + cocci seen in section of valve Lung puncture H S ++

Case 16—Heart failure following pancarditis

Case 17—Acute pancarditis pericarditis recent valvulitis Section of tricuspid valve showed chain of four gram + cocci Lung puncture H S ++

(bilateral) in spite of the fact that throat cultures had become negative in almost every case before the child died, (*b*) 13 out of 27 cervical and mediastinal glands, (*c*) 22 out of 42 valves, (*d*) 2 lung punctures 1 splenic puncture, 1 pericardial fluid, and 1 *nodule*

Controls—Fifteen control autopsies were performed. In most of these the tonsils had been removed during life and only in a few cases were the glands cultured Hence no conclusions can be drawn from these The heart blood and the valves were cultured in all however In only 6 was the heart blood sterile in the remaining 9 it contained different organisms, viridans streptococci and staphylococci prevailing In 6 the valves were sterile, in 5 they grew the same organism and in 4 a different organism than the heart blood in 1 were grown two colonies of what were thought to be hæmolytic streptococci

DISCUSSION

These results show that hæmolytic streptococci can be cultured at post mortem from widely varying sites in patients dying from acute rheumatism They are further evidence of the close association of these organisms and acute rheumatism The tonsil, gland and lung cultures are, I think, open to no criticism as to technique It is difficult to see how the organism could have reached them from any outside source Admittedly the hæmolytic streptococci may have gained admission to the spleen and pericardial fluid during the agonal state or after death, though this would seem unlikely Even if this were so, *it in no way detracts from the fact that the* organism appears ubiquitous in these cases at autopsy, indeed it serves rather to emphasise this fact

To explain the valve cultures or even to advance any theory to account for them is much more difficult

The facts may be restated thus. From 12 valves where the heart-blood was sterile a pure growth of hæmolytic streptococci was obtained From 5 valves where the heart-blood contained a viridans streptococcus at death, hæmolytic streptococci and viridans streptococci were cultured From 5 valves where the heart-blood was sterile, hæmolytic streptococci and some other organism were obtained From 4 valves (3 from one heart) where the heart-blood was sterile viridans or gamma streptococci were grown.

When these facts are considered, it will be clear why I at first withheld their publication till further controls and a better technique had been employed A possible explanation is that during the removal of the heart blood containing hæmolytic streptococci was sucked back, thus contaminating the valves; one must remember that it had been shown that the bodies contained many foci of streptococci. I submit that this explanation is rather unlikely It would be surprising if 22 out of 42 valves could be contaminated in this way.

Green's recent work was done entirely independently and without any knowledge of my results He also removed the hearts before opening them and culturing the valves, and in two instances he cultured *Bacillus coli* as well as hæmolytic streptococci from valves where the heart-blood was sterile. If the *B. coli* were contaminants (and presumably they were) then the hæmolytic streptococci may have found their way on to the valves in the same manner. Can Green really have managed to contaminate 14 valves with hæmolytic streptococci and I 22? On one of my last cases I remember taking a smear from the outside of a heart about to be opened in the laboratory and obtaining from it a pure growth of hæmolytic streptococci

It seems to me that the question can only be answered for certain by adopting a different technique In future a great effort must be made to perform these post-mortems almost immediately after death All the paraphernalia of the aseptic operation must be assembled—gowns, masks, gloves, sterile instruments, and so on. The heart must not be removed before the valves are cultured, but opened on the table with sterile instruments and the valves cut out and cultured then and there At the same time, cultures must be made from the parietal and visceral layers of pericardium before and after searing, from the heart-muscle, from the heart-blood before and after the heart is opened, and from the great vessels

Before such controls are done it is premature to speculate on the meaning of these cultures This much can be said. Hæmolytic streptococci can be obtained from many varying sites at autopsy from patients dying from acute rheumatism, and they are not acting pyogenically The pericarditis in the 4 cases from which hæmolytic streptococci were grown (3 of Green's and 1 of mine) appeared typically rheumatic and not infective The glands from which I obtained pure growths of hæmolytic streptococci were not breaking down with pus formation but presented an œdematous and hæmorrhagic appearance. I must also say that on two occasions gram-positive cocci were seen in valve sections and that one colony of hæmolytic streptococci grew from a rheumatic nodule removed at autopsy

In conclusion, I must emphasise that I am publishing these findings simply to help those who are working along similar lines, and I do so with great diffidence realising fully the possible sources of error.

SUMMARY

1. Past work on the bacteriology of rheumatic fever is reviewed critically and objectively.

2 In 17 rheumatic-fever autopsies, hæmolytic streptococci were grown from the centre of 14 out of 15 tonsils, from 13 out of 27 cervical or mediastinal glands, and from 22 out of 42 heart-valves.

3 These findings are felt to be worth publishing since Green has recently reported similar cultures from 9 rheumatic-fever autopsies

I must thank Dr. Wilfrid Sheldon and Dr. Gray Hill especially for their help and advice, and for some of the post-mortem material which they supplied. The work was supported by a grant from the Medical Research Council.

REFERENCES

Bertrand (1926) Revue de thérapeutique, Brussels
Birkhaug, K E (1927) *J. infect Dis* 36, 444
Bradley, W H (1932) *Quart J Med* 1, 79
Callow, B R (1933) *J infect Dis* 52, 279
Coburn, A F (1931) The Factor of Infection in the Rheumatic State, Baltimore
— (1935) *Jour exp Med* 62, 129
Collis, W R F (1931) *Lancet*, 1, 1341
Eagles, G H (1939) *Quart. J. Med* 8, 173
Glover, J A (1930) *Lancet*, 1, 499
Green, C A. (1939) *Ann rheum Dis* 1, 86
Haig-Brown, C (1886) Tonsillitis in Adolescents, London, p 39
Löwenstein, E (1931) *Med Klinik*, 27, 1669
— *(1932) Ibid*, 28, 1782
Nicholls, E E, Cecil, R L, and Stainsby, W. J (1929) *J. exp Med* 1, 617
Poynton, F J, and Paine, A (1900) *Lancet*, 2, 861
— — (1913) Researches in Rheumatism, London
Schlesinger, B (1930) *Arch Dis Childh* 5, 411.
— Signy, A G, and Amies, C R (1935) *Lancet*, 1, 1145
Sheldon, W (1931) *Lancet*, 1, 1337
Small, J C (1927) *Amer. J med Sci* 173, 101
Todd, E W (1928) *Brit J exp Path* 9, 1
Wassermann, Westphal, and Malkoff (1899) *Berl klin Wschr.* 36, 638
Wilson, G S, Schwabacher, H, Okell, C C, and Wood, E A. (1933) *Spec Rep Ser. med Res Coun, Lond* No. 182

TESTOSTERONE PROPIONATE IN CHRONIC MASTITIS *

By A W. Spence, M D Camb, F R C.P.
ASSISTANT PHYSICIAN TO ST BARTHOLOMEW'S HOSPITAL, LONDON

The cause of chronic mastitis is doubtful, but laboratory evidence suggests that the changes in the breasts may be due to the action of ovarian hormones, more especially œstrogens Ovarian activity is inhibited by suitable doses of male hormone (Zuckerman 1937), and Desmarest and Capitain (1937) were the first to report favourable results in chronic mastitis by intramuscular injections of testosterone acetate. In 16 of 17 patients it brought about relief of mammary pain and diminution or disappearance of adenomatous nodules Turpault (1937) and Bender (1937) have recommended testosterone propionate for the treatment of mastodynia, and Loeser (1938), using larger doses, observed the disappearance of nodules in 3 patients treated. In the present series of 24 patients with painful breasts and/or so-called chronic mastitis, 16 were treated with testosterone propionate with dramatic relief of pain in most cases; diminution of the nodules, although effected in some patients, was less striking

METHODS OF TREATMENT

The patients were referred for treatment by my surgical colleagues, all, except one who complained only of a lump in the breast, had presented themselves because of mammary pain Their ages ranged from 19 to 52, the majority being between 30 and 40 The pain was situated either in both breasts or in one most commonly in the left It was continuous in 13, and in 8 it would come on seven to ten days before the menstrual periods Half of the patients suffered from "painful breast," no abnormality being detected on clinical examination , the other half had obvious and easily palpable lumps in one or both breasts In the majority (18 patients) the menstrual cycle was normal , in the remainder there was hypomenorrhœa, oligomenorrhœa, amenorrhœa, or menorrhagia

---

* A more detailed discussion and full case-records will be published in *St Bartholomew's Hospital Reports*

Treatment with sterile olive oil —In view of the pronounced psychological element in the genesis of mammary pain, all patients were first treated with intramuscular injections of sterile olive oil as a placebo twice a week for several weeks In 13 patients there was a dramatic improvement in the pain, whether it was continuous or not 5 were completely relieved, 5 greatly improved, and 3 improved In 4 patients thus improved there was a fairly large lump in the breast In 1 patient, originally examined fifteen days before the onset of the menstrual period, a large nodular mass in the right breast disappeared during the control period of three months Had she been receiving testosterone, the improvement in the breast would have been ascribed to this In several patients seen some months later there had been no recurrence of pain

Treatment with testosterone propionate —To 8 patients with no lumps, whose pain was completely or greatly relieved with olive oil, no further treatment was given To 16 patients, whose breasts contained a lump or whose pain was not relieved by olive oil, intramuscular injections of testosterone propionate were given, in the main twice a week, but in some three times a week In most patients injections three times a week were impossible, for they were unable to attend so frequently To those with a lump in the breast or with continuous pain treatment was given continuously, but to those without lumps and with pain only during the two weeks before menstruation treatment was given only during this period

The dose employed in most patients at first was 25 mg twice a week If the response to this after a few weeks was unsatisfactory, the dose was increased to 50 mg twice a week, and later in some to 100 mg twice or three times a week Treatment was continued for various periods, depending on the response : in some patients with pain unassociated with nodules only a few weeks' treatment proved necessary , in others with nodules it was continued for several months , and in others it was resumed after an interval There was thus a considerable variation in the total dosage some patients receiving only 100 to 500 mg and others as much as 2000 to nearly 3000 mg

RESULTS WITH TESTOSTERONE PROPIONATE

Pain —Of 16 patients treated 12 complained of pain , 8 of these were completely relieved, 2 improved, and 2 not improved Some patients were completely relieved after the first few injections of 25 mg , whereas others required 50 mg or 100 mg twice a week One of the two patients not improved received a total of 2000 mg during a period of twenty weeks during the last four weeks she was given 100 mg twice a week, which suppressed menstruation The other received inadequate treatment owing to increased growth of hair on the face In 4 patients there was little or no pain after treatment had been discontinued for several months , 2 patients in whom pain returned on cessation of treatment, were improved with further therapy

Effect on nodules —In 12 patients treated with testosterone propionate there were lumps in one or both breasts Improvement was brought about in 8 in 3 of them the lumps completely disappeared, but in 2 of these spontaneous disappearance cannot be excluded (in 1 patient the lump was smaller at the end of treatment and disappeared during the subsequent two months when she was not receiving treatment) The third patient required a total dose of 2925 mg over a period of five months to effect the disappearance of a large lump in the right breast This amount caused prolonged amenorrhœa, atrophy of the endometrium, and hypertrophy of the clitoris In the remaining 5 there was some reduction in the size of the nodules but in 1 patient a large lump which appeared after cessation of treatment could not be influenced by further therapy

In 4 patients treatment did not bring about any reduction in the size of the lumps , in fact, in 2 patients fresh lumps appeared during treatment In 1 patient the treatment was admittedly inadequate owing to the appearance of slight growth of hair on the face and the patient's consequent refusal to continue Of the 3 other patients 1 was given a total of 1300 mg in doses of 100 mg once a week, 1 a total of 2075 mg in doses of 25 mg and later 50 mg twice a week, and 1 a total of 2000 mg in doses of 25 mg , 50 mg and later 100 mg twice a week These doses were sufficient to suppress menstruation in the last 2 patients

Effect on the menstrual cycle —Menstruation was suppressed in 7 patients in 2 with 50 mg twice a week, in 3 with 100 mg twice a week, and in 2 with 100 mg three times a week (in 1 of whom 100 mg twice a week failed to suppress menstruation) Doses of 25 mg and 50 mg twice a week produced irregular responses Doses of 25 mg twice a week caused no change in the cycle in some patients, in others it reduced the length of the cycle, and in others it prolonged the cycle Doses of 50 mg twice a week suppressed menstruation or diminished the flow , in 1 patient this dose lengthened the cycle from twenty-one to twenty eight days, and in 1 with menorrhagia it shortened the duration of flow and prolonged the interval between the periods In other patients, however, it caused menstruation to be more profuse It is noteworthy that in 1 patient, although 50 mg twice a week at first caused amenorrhœa, a few months later after seven weeks' treatment with œstradiol benzoate (5 mg intramuscularly bi weekly) 500 mg testosterone propionate in 50 mg doses begun on the seventh day of the cycle did not suppress the succeeding period which began a week early

General effects of testosterone propionate —In a few patients treatment appeared to have some effect on the general condition 1 "felt better in herself," 1 "felt twice as fit," and 1 no longer felt ill before her periods Since all patients were given a preliminary course of injections with sterile olive oil and, while receiving this, experienced no change in their general health, the psychological effect of treatment may be excluded On the other hand, 1 patient felt depressed and "had no energy" while receiving 25 mg twice a week, and 1 developed acne vulgaris on her face, her complexion previously having been good

Increased growth of hair on the face limbs, or trunk appeared in 5 patients and necessitated cessation of treatment The total amounts of testosterone propionate given to these patients were 275 mg , 450 mg , 400 mg , 2000 mg , and 325 mg In 2 patients the increased growth of hair disappeared on cessation of treatment, but in the remainder it has persisted until the time of writing—i e for several months The doses given to 4 of these patients were relatively small and yet in patients receiving far larger doses there was no evidence of this unpleasant complication In 1 patient hoarseness of the voice developed, but laryngoscopy revealed nothing abnormal; the hoarseness disappeared three weeks after treatment with testosterone was stopped.

Examinations for hypertrophy of the clitoris were not made, but in 1 patient, on whom endometrial biopsies were performed by Mr J. Howkins during a period of amenorrhœa brought about by the treatment, considerable growth of the clitoris was observed. The endometrium showed extreme atrophy.

DISCUSSION

It is generally agreed that the term chronic mastitis is a misnomer, because the lesion is not a process of inflammation. Some observers, notably Cheatle and Cutler (1931), consider that the terms “ chronic mastitis ” and “ chronic cystic mastitis,” as commonly employed, include states which are entirely separate entities and differ from each other biologically and morphologically. Atkins (1938), however, hesitates about accepting such a division, and Keynes (1923) is of the opinion that the many lesions of the breast usually described as clinical entities are all different manifestations of the one disease, chronic mastitis. For my present purpose I follow Atkins and Keynes and consider the painful and nodular breast as one clinical entity. The solution, however, of the problem is important, for if there prove to be types of chronic mastitis of different ætiology, and if the difference in ætiology lies in different endocrine disturbances, it is obvious that all types may not respond to the same treatment.

I do not believe that a patient with a painful breast is necessarily suffering from chronic mastitis. Psychological factors play an important part in the genesis of pain in this position; reassurance will often bring about striking benefit, and a course of injections, even of an inert substance, will often produce the mental effect necessary to banish pain. This was observed in the present series even when the pain was accompanied by lumps in the breast. In view of this, the reports of observers on the relief of pain in chronic mastitis with hormone preparations are valueless without proper control. In the absence of a psychological or of a neuralgic factor, the pain in the breast is believed to be due to distension of the ducts and acini.

Testosterone propionate was used in the treatment of chronic mastitis on the assumption that the condition was an œstrogen effect and because the substance inhibits ovulation. Suppression of ovulation by androgens is considered to be due to an action on the pituitary. Satisfactory results have been reported with this preparation; but, since the doses used were 5–30 mg. at two-day intervals for a very short period, it is unlikely that such an amount has an inhibiting effect on the pituitary. There was no doubt that in the present series a dose of 25 mg. twice a week relieved mammary pain in some cases. Larger doses were required in others; but, since in some patients they were not high enough to cause amenorrhœa, I am inclined to believe that in the relief of pain the action of testosterone propionate may possibly be local rather than through inhibition of the pituitary.

I have not been greatly impressed by the effect of testosterone propionate on the nodules, although in some cases it did appear to exert some influence. The criticism may be raised that in some patients the doses were not sufficiently large, and that better results would have been obtained by persisting with a weekly dose of 200 mg. or more to produce amenorrhœa in all patients for some months. However in 2 patients in whom menstruation was suppressed the size of the nodules was unaffected, and in 2 patients in whom the nodules were diminished amenorrhœa was not produced. The disappearance of the lump in 1 patient was striking, but the doses required to effect this (2925 mg. in five months) produced hypertrophy of the clitoris and extreme atrophy of the endometrium. The risk of such profound changes in the genital organs, especially during the reproductive period of a woman's life, does not, in my opinion, justify the administration of testosterone in large doses for a long time. The increased growth of hair in 5 of the 16 patients treated is a further demonstration that the indiscriminate use of this substance in women is to be deprecated. For this reason alone it should be administered cautiously. It is noteworthy, however, that this complication arose in younger women; it was not observed in older women receiving very much larger doses.

Desmarest and Capitain (1937) recommend that large nodules be punctured and the fluid contents withdrawn. This I have not done, for I wished to determine what effect testosterone had on the nodules without such a procedure.

The effect of testosterone propionate on the menstrual cycle was of interest. It has been shown that testosterone suppresses the œstrous cycle in laboratory animals (Robson 1936) and menstruation in monkeys (Zuckerman 1937, Hartman 1937) and in women (Gaines, Salmon, and Geist 1938). In the present series amenorrhœa was produced in some patients with 100 mg. a week, but as a general rule 200 mg. was required. This dose, however, was not always effective.

I find it difficult to explain the variations in the menstrual cycle with doses insufficient to cause amenorrhœa. In immature animals small doses of testosterone propionate have been shown to have a gonadotrophic effect (Starkey and Leathem 1938, Salmon 1938), and Parkes and Zuckerman (1938) have suggested that the ovarian response to testosterone depends on the pituitary. It is possible that the variations in the menstrual cycle with the smaller doses are related to a gonadotrophic effect of testosterone or are caused by irregular pituitary activity as a result of testosterone.

In conclusion, it is evident that the treatment of chronic mastitis with hormone preparations is still in the experimental stage. The results with testosterone propionate are promising, in that it brings about dramatic relief of pain and in some instances diminution in the size of the nodules. It must be emphasised, however, that it is a substance which should be used with caution in women, for prolonged amenorrhœa and atrophy of the endometrium are undesirable, and one should bear in mind the risk of increased growth of hair on the face, limbs, and trunk, which to a woman is a serious matter.

SUMMARY

Of 24 patients with painful breasts and chronic mastitis treated with intramuscular injections of sterile olive oil (as a control), pain was relieved in 13, whether they had lumps in the breast or not. No further treatment was given to 8 of these 13 who had no lumps.

The remaining 16 patients were treated with testosterone propionate injected intramuscularly in doses of 25 mg., 50 mg., and 100 mg., usually twice a week for several months. In 14 patients pain was relieved.

In 12 patients treated there were lumps in the breast; in 3 the lumps disappeared, but in 2 of these spontaneous disappearance could not be excluded, and

in 1 2925 mg in five months was required, resulting in hypertrophy of the clitoris and extreme atrophy of the endometrium In 5 patients there was some reduction in the size of the nodules In 2 patients who were not improved fresh nodules appeared in the breast during treatment

Menstruation was suppressed in 7 patients receiving the larger doses

Increased growth of hair developed in 6 of the younger patients, in 4 with comparatively small doses, but this was not observed in older patients receiving much larger doses It is emphasised that because of this complication and the undesirability of prolonged atrophy of the endometrium, testosterone propionate should be used with caution in women

I should like to thank my surgical colleagues for referring the patients to me and my house-physicians, Mr G Herbert Mr P Quibell Mr P F Barwood, and Mr A G Marshall, for their valuable assistance I am also indebted to Mr T F M Smart, of Messrs Ciba Ltd and Dr A N Macbeth, of N V Organon, for supplies of testosterone propionate (Perandren and Neo-hombreol)

REFERENCES

Atkins H J B (1938) *Lancet* 1 707
Bender, S (1937) *C R Soc franç Gynéc* 7 222
Cheatle, G L and Cutler, M (1931) Tumours of the Breast London p 77
Desmarest F and Capitain (1937) *Pr méd* 45 777, 1100
Gaines, J A, Salmon U J and Geist S H (1938) *Proc Soc exp Biol* N Y 38 779
Hartman C G (1937) *Ibid* 37, 87
Keynes G (1923) *Brit J Surg* 11, 89
Loeser A (1938) *Lancet* 1 373 2 319
Parkes A S and Zuckerman S (1938) *J Physiol* 93 16P
Robson J M (1936) *Proc Soc exp Biol* N Y 35 49
Salmon, U J (1938) *Ibid* 38, 352
Starkey W F and Leathem, J H (1938) *Ibid* 39 218
Turpault M (1937) *C R Soc franç Gynéc* 7, 181
Zuckerman S (1937) *Lancet*, 2 676

DISSEMINATION OF INFECTION IN SCHOOL DORMITORIES

By F G Hobson DSO DM Oxfd, FRCP
HON PHYSICIAN TO THE RADCLIFFE INFIRMARY, OXFORD

THE following extract from the report of the Royal Commission for improving the Sanitary Condition of Barracks published in 1861, provides a useful introduction —

> Before the soldier can be assured of having the amount of space required for health there must be a distinct recognition that the amount given by regulation (i e 600 cubic feet and 3 feet between beds) is on no account to be tampered with No increase of regimental strength no want of store rooms libraries, or reading rooms should for an instant be permitted to interfere with it
>
> It would never be pleaded as a reason for reducing the soldier's ration of bread and meat that a larger number of men had joined the regiment than the commissariat could provide for
>
> Why should the soldier's air ration which is equally important for his health and efficiency be differently dealt with ?
>
> In any case overcrowding should utterly be put an end to
>
> If above a certain number of men are placed in a given cubic space the lives of some of these men and the health of others is certain to be sacrificed

If for the "soldier" and the "regiment" we substitute the "school child" and "school," these observations apply with even greater force

As Glover (1933) has pointed out

> Schools are populated by aggregations of children at highly susceptible ages almost undiluted by the less susceptible adult and moreover receive each term fresh batches of newcomers thus they have less herd immunity than a natural herd or any ordinary family, and, as is only to be expected, they furnish us with some of the severest tests and most interesting problems in preventive medicine

Le Fleming stated that "All schools with *very very few exceptions* are overcrowded to the detriment of the health of the pupils," and that this observation applied particularly to our public schools and their associated preparatory schools

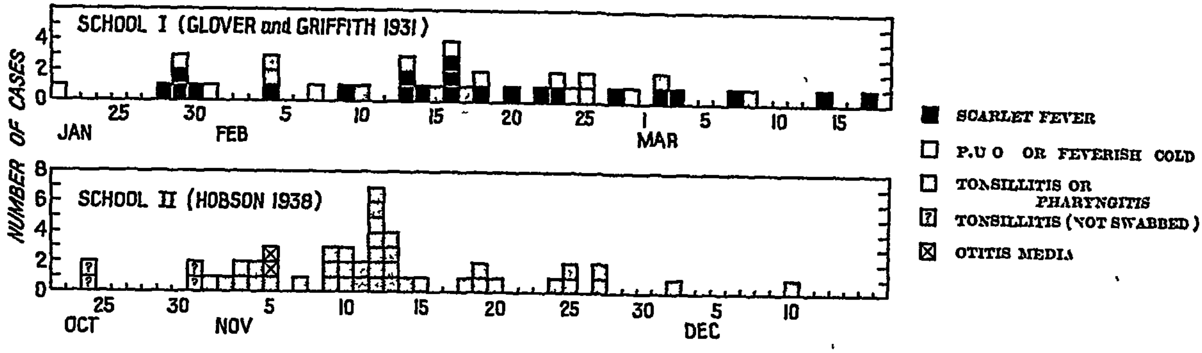
Sources of infection are always present in a school community, and new infection is liable to be introduced at any time The dissemination of infection through such a community depends on the close contact of individuals and the ventilation of the apartments in which they meet Unfavourable environmental conditions which produce overcrowding vary in different institutions and in different buildings, but overcrowding is usually most dangerous in dormitories, where for some eight hours susceptible individuals may be subject to intimate or repeated exposure to pathogenic organisms from the nasopharyngeal secretions of neighbours whether these be healthy carriers or in the stage of incubation of an active infection The more successful the school, the greater the temptation to overcrowd the existing accommodation A private school is not a charitable institution and the good reputation of a school depends less on its health record than on other social educational, and economic considerations The health record of a school rarely finds a place in its printed official communications

EPIDEMICS IN A SCHOOL

General experience shows that the Michaelmas and summer terms (in that order) are the two most favourable terms of the year for freedom from epidemic diseases and for the general well being of school communities The epidemics hereafter described are therefore more significant by virtue of the fact that they occurred in the two more favourable terms of the year The school concerned in the present account is an entirely residential preparatory school in ideal surroundings with spacious dining rooms and recreation rooms and good class-rooms The commissariat is excellent, as shown by the regular termly increment in weight recorded in 95 per cent of the boys in the school

In the summer term an epidemic of german measles was succeeded by a nasopharyngeal epidemic due to *Streptococcus hæmolyticus* (not typed) Between May 22 and July 23 40 boys were admitted with acute nasopharyngeal infections and parents were warned at the end of term that casualties must be expected among the boys after their return home. Several such casualties occurred in the first few days of the holidays This epidemic gave rise to the following complications otitis media 4 cases adenitis 3 cases, erythema and nephritis 1 case (the only case that developed a "scarlatinal" rash) This experience suggested that environmental conditions were unsatisfactory and that there was overcrowding probably in the dormitories

In the succeeding Michaelmas term the epidemic developed which is now described in detail The term opened with a series of cases of feverish colds and bronchitis but with no evidence of any appreciable faucial infection There were 24 such cases between Sept 21 and Oct 24 on which date 2 cases of acute tonsillitis developed to be succeeded by [illegible] more cases on Oct 31 From Nov 1 each [illegible] [illegible] 42 cases of tonsillitis and pharyn[illegible] swabbed and the organism typed



Bacteriology.—The prevalent organism was *S. hæmolyticus* type II. All swabs were examined and typed by Dr. F. E. Camps, using Griffith's technique, and the organism was recovered in pure culture from 41 of the 42 cases. This organism is in general associated with high erythrogenic properties or in other words is regarded as a highly "scarlatinal" strain. The accompanying figure illustrates the fact that the same strain in different communities may produce very different epidemics.

Five members of the resident and domestic staff also succumbed to the same infection.

Clinical features.—The tonsillitis or pharyngitis (in the tonsillectomised) was characterised by a white filmy mucoid secretion with scattered points of exudate at the follicular orifices of the tonsils or on the lateral pharyngeal bands and on the summits of the discrete lymphoid nodules on the posterior pharyngeal wall. The clinical picture in each case was remarkably constant.

In common with most private preparatory schools the population was highly tonsillectomised (80 per cent.)

Surgical complications developed in 3 tonsillectomised patients: sinusitis 1; otitis media 1; and otitis media and mastoiditis 1. A transient albuminuria, which later disappeared, was present in 5 cases in the third week of convalescence. Apart from the surgical complications the duration of the disease was short, and in view of the "scarlatinal" attribute of the causal organism it is interesting that there was no case of erythema (scarlet fever) among 41 cases.

Treatment.—Every patient was treated with Proseptasine (benzene-*p*-aminobenzenesulphonamide) 1 g. four-hourly and simple gargles.

Epidemiology.—The epidemic showed the relentless slow tempo characteristic of an infection due to *S. hæmolyticus* in a susceptible community free from concomitant coryzal infections (Glover and Griffith 1931, Hobson 1938), a feature which was equally obvious in the epidemic of the previous summer term (see figure).

Environmental conditions.—The minimum of space recommended by the Board of Education for dormitories is 65 sq. ft. per bed, 3 ft. between the edges of adjacent beds, and 700 cu. ft. per person. The conditions in the eleven dormitories in the school are shown in the accompanying table. There were eight beds in each dormitory. The window space and ventilation in each dormitory were liberal, but no single dormitory conformed to the minimal standards laid down by the Board of Education, and in three dormitories the available space was approximately half the minimal standard.

For purposes of illustration the dormitories have been given a numerical order which is the reverse of their claim to excellence. On theoretical grounds the spread of disease in dormitories should be in inverse ratio to the space available for each individual, and the table shows that there is a striking correspondence between theory and practice.

Dormitory No	Per bed		Cases of infection or reinfection	Dormitory No	Per bed		Cases of infection or reinfection
	Floor space (sq. ft.)	Cubic space (cu. ft.)			Floor space (sq. ft.)	Cubic space (cu. ft.)	
1	37¾	378	10	7	42¾	428	4
2	39¾	398	8	8	44	439	3
3	39¼	398	6	9	46	411	4
4	40¾	377	5	10	45¾	413	4
5	40¼	377	5	11	54½	518	3
6	41½	415	3				

DISCUSSION

It would be reasonable to consider that the publication of the details of an epidemic such as that now described was no more than preaching to the converted, in that it has been addressed to a professional audience. Nevertheless it is true that extremely few school medical officers have had any specific training in the highly specialised epidemiological problems of closed communities. Only by affirmation, repetition, and contagion will the elementary truths of the epidemiology of closed communities be established and generally accepted by the responsible authorities. In the absence of any specific training for school medical officers in the relevant branches of preventive medicine, and in the presence of the autocratic ignorance of headmasters and boards of management, the incidence of epidemic diseases and their complications is more readily attributed to misfortune than to mismanagement and faulty organisation.

Eighty years after the elementary truths of environmental hygiene were stated in the report of the royal commission of 1861 we have to deplore that many headmasters and boards of management are even now apparently not aware that "if above a certain number of children are placed in a given cubic space, the lives of some of these children and the health of others, is certain to be sacrificed." Few parents are aware of the dangers to which their offspring may be exposed in a school environment where there is overcrowding, and still fewer possess the courage or the critical faculty necessary to pass judgment on the details of an establishment which is usually inspected in the most favourable circumstances.

and under the guidance of the proprietors or their representatives.

The prestige of an established institution provides a formidable obstruction to criticism. The reverse side of the "old school tie" was never intended for public inspection.

SUMMARY

(1) An epidemic in a residential school is described, due to *S. hæmolyticus* type II.

(2) The incidence of infection and reinfection was intimately related to the degree of overcrowding in the dormitories.

(3) The epidemic showed the characteristic slow tempo of a pure streptococcal epidemic.

(4) In this epidemic there was no single case of scarlet fever, although the prevalent organism is generally associated with highly erythrogenic properties.

REFERENCES

Board of Education (1931) Educational Pamphlet No. 86, London.

Dudley, S. F., *Spec. Rep. Ser. med. Res. Coun. Lond.* No. 3.

Glover, J. A. (1933) *Lancet*, 2, 1224.

— and Griffith, F. (1931) *Brit. med. J.* 2, 521.

Hobson, F. G. (1938) Medical Practice in Residential Schools.

Lo l leming, E. K. (1934) *Prep. School Rev.* p. 37.

STOMATITIS OF DIETARY ORIGIN

By W. R. Aykroyd, M.D., Sc.D. Dubl.

DIRECTOR OF NUTRITION RESEARCH, INDIAN RESEARCH FUND ASSOCIATION

Rao Sahib B. G. Krishnan

ASSISTANT SURGEON AND

R. Passmore, B.M. Oxfd

CAPTAIN, INDIAN MEDICAL SERVICE; ASSISTANT DIRECTOR OF NUTRITION RESEARCH

(From the Nutrition Research Laboratories, I.R.F.A., Coonoor, S. India)

Two articles have recently appeared in THE LANCET, dealing with clinical conditions, other than pellagra, which appear to be caused by a deficiency of some factor or factors in the vitamin B_2 complex.

Katzenellenbogen (1939) describes endemic glossitis in Palestine and records that in 21 out of 24 cases the administration of nicotinic acid produced striking improvement.

Landor (1939), writing on deficiency of vitamin B_2 in Malaya, reports that 10 prisoners with eczema of the scrotum, some of whom also had stomatitis, were given nicotinic acid; this treatment improved neither the eczema nor the sore mouth. Subsequently the administration of marmite caused the rapid disappearance of both oral and scrotal lesions. The dose of nicotinic acid given by these workers was 200–500 mg. daily.

Sebrell and Butler (1938) describe lesions of the lips (cheilosis) in 10 women fed on a deficient diet. There was apparently no glossitis in these cases. Nicotinic acid (100 mg. daily) produced no obvious improvement, but cure followed the daily administration of 1–2 mg. of riboflavin, another factor in the vitamin B_2 complex.

All these authors refer to the angular stomatitis or sore mouth studied by us in India (Aykroyd and Krishnan 1936, 1937, 1938) and assume that this condition is related to those they have observed.

Previous investigations (Aykroyd and Krishnan 1936, 1937, 1938) have shown that stomatitis is common in Indians of the poorer classes living on a diet largely composed of rice and deficient in milk and vegetables.

The following description may be quoted:

> "In a typical case white patches are visible at the angles of the mouth. The epithelium in this area has a sodden appearance, and the presence of fungus infection is suggested. White patches may extend inwards from the angles of the mouth to the mucous membrane of the cheek. Fissures are often present at the labial angles. Erosion of the mucous membrane of the tongue, particularly marked at the sides and the tip, is usually observed. Sometimes cracks are visible on the surface of the anterior part of the tongue. In severe cases much of the anterior part of the buccal cavity is red and eroded, and eating is painful. The posterior part of the cavity and the larynx seem not to be involved in the type of case usually encountered. The general term 'sore mouth' is often used by the laity to describe the condition."

Cases are sometimes observed in which glossitis is present with little involvement of the angles of the mouth, and vice versa, but as a rule angular stomatitis is accompanied by erosion of the tongue. Cracking of the lips is often seen. Nicholls and Nimalasuriya (1939) remark that "angular stomatitis and superficial erosion of the tongue ... are almost certainly due to the same deficiency and will be alluded to as sore mouth." The observations of these workers were made in Ceylon, where dietary conditions are very similar to those found in South India. Excoriations at the palpebral angles and in the region of the alæ of the nose, erosion of the mucocutaneous junctions of the prepuce, anus and vagina and eczema of the scrotum may also develop in persons with stomatitis. In our experience these conditions are usually found when stomatitis is severe. Many cases of stomatitis are observed in which there are no lesions elsewhere. The *symmetrical dermatitis of pellagra* is absent, no matter how severe the condition of the mouth.

The condition can be cured by skimmed milk, eggs and dried yeast, unheated or autoclaved (cod-liver oil is without effect); it disappears from institutions and groups after an all-round improvement of the diet and, in particular, the consumption of more vegetables. In our most recently reported investigation it was shown that stomatitis was cured or improved by alkaline autoclaved yeast. The flavin present in yeast is presumably largely destroyed by such treatment. On the basis of these results we concluded that "the anti-stomatitis vitamin is probably identical with the factor in the vitamin B_2 complex which is effective in treating human pellagra."

Recent work has shown that pellagra can be dramatically relieved with nicotinic acid. The glossitis of pellagra improves within forty-eight hours of the start of treatment (Spies et al. 1938). True pellagra is rare among rice eaters. Rice is, however, a poor source of nicotinic acid, particularly when highly milled (Swaminathan 1938). It thus appeared possible that the poor rice-eater's diet might be partially deficient in nicotinic acid, and that this deficiency might be the cause of stomatitis and associated conditions. Accordingly we investigated the effect of nicotinic acid on sore mouth.

PRESENT INVESTIGATION

A series of cases on a group of tea estates was first investigated. These patients were living on a diet of parboiled milled rice with very limited quantities of pulses, vegetables and fruit, and no milk or flesh food. Besides stomatitis some of these patients developed excoriation and desquamation at the mucocutaneous junctions of the anus, vagina, and prepuce, resembling the "orogenital syndrome" observed by Nair (1939) in Vizagapatam. Eczematous conditions of the scrotum, similar to those described by Nair and by Landor (1939), were also seen. Xerophthalmia was common among the children on the estates, and probably many of the patients with *stomatitis* were also suffering from a partial deficiency of vitamin A. The group contained a few cases of phrynoderma, and most of the patients had rough dry skins.

Nicotinic acid 50 mg. daily was given to 14 patients for twenty-six days, and 9 patients, acting as controls, received no treatment. Of the 14 treated patients 4 greatly improved, 5 showed some improvement, and 5 remained unchanged. Of the 9 controls 3 showed slight improvement, 5 remained unchanged, and 1 became worse.

Illustrative case-records.—The following cases are given as typical examples:—

CASE 1.—Female, aged 20. The tongue was smooth and fissured. Angular stomatitis was severe and had been present for two years. Some blepharitis was present which had recently become much worse. The skin was very dry, but there was no phrynoderma. After twenty-one days' treatment with nicotinic acid 50 mg. daily both the glossitis and the angular stomatitis became much better. On the tongue new mucous membrane had regenerated, but some fissures persisted.

CASE 2.—Female, aged 17. The tongue was smooth and fissured, and there was definite angular stomatitis. The patient had had cod-liver oil for three weeks with no improvement. Phrynoderma was present. Some improvement was reported after treatment with nicotinic acid 50 mg. daily. An attack of malaria then occurred. Treatment was continued, but after twenty-six days no definite improvement could be noticed.

CASE 3.—Male, aged 23. The tongue was sore and fissured, with raw areas denuded of mucous membrane. Slight angular stomatitis was present, and there was some pain on swallowing. There were no genital lesions. The condition had persisted for eight months without treatment and was getting worse. The patient was treated with nicotinic acid 50 mg. daily. After thirteen days the glossitis was improved and the papillæ over the denuded areas were beginning to regenerate. The angular stomatitis had completely gone, and the patient felt much better. After twenty-six days the tongue appeared almost normal, with the fissures much reduced and the mucous membrane regenerated.

CASE 4.—Male, aged 22. The tongue was raw but not fissured. The angular stomatitis was slight but had been present a year. There was definite pain on swallowing. There had been no treatment, and the condition was getting worse. The patient was treated with nicotinic acid 50 mg. daily. After twenty-six days the glossitis was very much improved and new mucous membrane was regenerating. The pain on swallowing had gone, and the mouth was no longer sore. Some slight angular stomatitis still persisted.

CASE 5.—Male, aged 20. The tongue was red, smooth, and fissured. There was angular stomatitis, with extension inside the mouth and involvement of the whole buccal cavity. Phrynoderma and an eczematous condition of the scrotum were present. There was much excoriation at the mucocutaneous junction of both anus and prepuce. The condition had lasted five months and was getting worse. There was no definite improvement after twenty-six days' treatment with nicotinic acid 50 mg. daily.

The dose of nicotinic acid given in this series of cases was small in comparison with the dosage usually given in pellagra. It was nevertheless considerably in excess of the amount of nicotinic acid supplied by 1 oz. of skimmed-milk powder or of dried yeast, which contain about 5 and 20 mg. of nicotinic acid respectively (Swaminathan 1938). We had previously found that yeast and milk powder given daily in these quantities had a curative effect on stomatitis.

Treatment with larger doses.—In another series of 10 cases larger doses were given; these were mostly patients living in the neighbourhood of Coonoor. The following is a brief description of these cases:—

CASE 6.—Female, aged 20, with severe glossitis and much excoriation of the lips and labial angles. The patient also complained of burning pains in the hands and feet. Doses of 100 and 200 mg. of nicotinic acid were given during the first and second days of treatment respectively, and subsequently 400 mg. was administered daily for six days. The response of the buccal lesions to treatment was immediate and striking: improvement was visible within forty-eight hours. Within eight days the raw areas on the tongue were covered by new mucous membrane, the fissures were almost filled in, and all soreness of the mouth had disappeared. The angular stomatitis was cured, except that on one side a small white patch persisted.

CASE 7.—Male, aged 18, with angular stomatitis and glossitis, but no other lesions elsewhere. Nicotinic acid 1500 mg. was given in five days. The glossitis showed immediate improvement, but the angular stomatitis remained unchanged during the period of treatment.

CASE 8.—Male, aged 13, with glossitis and mild angular stomatitis, but no other lesions. Nicotinic acid 1900 mg. was administered in seven days. The result was a great improvement in the glossitis and angular stomatitis. All soreness disappeared. Two days after the administration of nicotinic acid was stopped the patient again complained of sore mouth, and superficial erosion of the tongue reappeared.

CASE 9.—Male, aged 17, with severe glossitis, angular stomatitis, and eczema of the penis and scrotum. This patient received 1500 mg. of nicotinic acid in five days, and the glossitis and angular stomatitis were completely healed. There was, however, no improvement in the eczema of the penis and scrotum during this period.

CASES 10–15.—Six patients, aged 6–18, were given nicotinic acid 200 mg. daily for fourteen days. In 3 of these there was a very rapid improvement in the tongue, with complete regeneration of the mucous membrane and a filling in of the deep fissures originally present at the sides, but no great change in the lesions at the angles of the mouth. Of the other 3 cases, in 1 there was improvement in the glossitis, but little in the labial lesions, and the remaining 2 patients did not show any definite amelioration during the fourteen days of treatment with nicotinic acid. The stomatitis in these 3 children rapidly disappeared when they were given 8 ozs. of reconstituted skimmed milk (1 oz. of milk powder) daily for fourteen days.

To the best of our knowledge the patients given nicotinic acid and the controls continued to consume the same ill-balanced diet largely composed of milled rice during the period of treatment.

Results.—Altogether we treated 24 cases of stomatitis with varying doses of nicotinic acid. Of these 9 responded rapidly and were either cured or very much improved; 7 showed definite improvement, but some signs persisted after prolonged treatment; and 8 did not show any improvement.

DISCUSSION

Taken as a whole, our results suggest that a deficiency of nicotinic acid is concerned in the causation of some cases of stomatitis in rice eaters consuming an ill balanced diet In most patients receiving the larger doses of nicotinic acid the glossitis immediately improved Our observations therefore to some extent confirm those of Katzenellenbogen (1939), but the percentage of cases not improved by nicotinic acid treatment was larger in our series than in his

In general the tongue responded more rapidly than the labial lesions to nicotinic acid This finding might be related to the observation of Sebrell and Butler (1938) that cheilosis can be cured by flavin but not by nicotinic acid But in our series there were several cases in which both the glossitis and the angular stomatitis responded simultaneously to nicotinic acid, and in one or two the stomatitis was cured while the glossitis remained unchanged Katzenellenbogen (1939) describes lesions of the angles of the mouth besides glossitis in his series of cases but does not record any difference in the response of these conditions to nicotinic acid

In one of our cases eczema of the scrotum persisted after the buccal conditions had disappeared on treatment with nicotinic acid This agrees with the observations of Landor (1939) Our experience of the effect of nicotinic acid on lesions of the scrotum, anus, prepuce, and vagina has not been sufficient to allow any conclusions to be drawn

Discrepancies between the accounts of stomatitis and associated conditions and their reaction to treatment given by various workers and the lack of a satisfactory response to nicotinic acid in some of our cases, can probably be explained by the fact that a diet deficient in one factor in the vitamin B_2 complex tends to be deficient in others The old "heat stable vitamin B_2" has been split up into several components The chemical constitution of three of these—nicotinic acid, riboflavin and vitamin B_6—is known, at least two more are well defined and their chemical nature and physiological properties are now being elucidated These factors are closely associated in common food stuffs A diet largely composed of milled cereals or starchy roots is deficient in the B_2 group of vitamins The degree to which the various components of the group are lacking differs according to the nature of the staple and supplementary foods Further, diets deficient in vitamin B_2 also tend to be deficient in other vitamins

The present situation is that workers in various parts of the world have reported syndromes ascribed to deficiency of vitamin B_2 which bear a general resemblance to each other but differ in various respects Besides those described by Katzenellenbogen (1939) Landor and Pallister (1935), Sebrell and Butler (1938) Nair (1939), and Aykroyd and Krishnan (1936 1937 1938) there are also related conditions described by Wright (1930 1936) Moore (1937) Williams (1935) Trowell (1937), and others in tropical Africa Most of the above workers observed that improvement followed the administration of yeast or marmite

Nair (1939) found that where as yeast, liver extract, and milk produced some improvement in the oro genital syndrome, the most satisfactory result was obtained when a well balanced diet was given This accords with the observation of Aykroyd and Krishnan (1937) that in children's institutions stomatitis only developed when the diet was largely composed of milled rice and contained little or no milk or vegetables It is not found when the diet is a little above this level and rapidly disappears from an institution when even a slight improvement in the diet is made

Katzenellenbogen (1939) records the fact that endemic glossitis in Palestine has a different seasonal incidence from that of pellagra, and he apparently does not regard the glossitis as an initial stage in the development of pellagra, in spite of the fact that he cured it with nicotinic acid Landor (1939) likewise differentiates from classical pellagra the syndrome that he describes We are also of the opinion that the term "pellagra" should not be applied to stomatitis and the lesions which sometimes accompany it in ill nourished rice eaters in India

In certain parts of North India, in which maize is the staple cereal, classical pellagra is by no means uncommon (Bajaj 1939), but in the rice eating areas true pellagra is rare Cases are described from time to time, but these are usually regarded as clinical curiosities Stomatitis, on the other hand, is extremely prevalent In the field surveys carried out by the Nutrition Research Laboratories, schools have been visited in which 30 per cent of the children had various degrees of sore mouth If, as Stannus (1936) maintains, stomatitis is an early sign of pellagra it is curious that, with perhaps hundreds of thousands of cases of stomatitis occurring annually only a few mild cases of pellagra reach the hospitals

One other fact of importance in this connexion may be mentioned In occasional cases inflammation, beginning in the mouth spreads down the gullet and the patient becomes dangerously ill, though still not showing the dermatitis of pellagra Such cases were described by Dr Cornish, sanitary commissioner, Madras Presidency, as long ago as 1877 His description is quoted by Porter (1889) —

> "*In adults a symptom of the cachectic state was a* white coating to the mucous membrane of the mouth, which cracked and peeled off in strips, leaving a glazed red, raw, and painful surface underneath This state was not so prevalent in the Royapettah famine sheds as in the 'Monegar Choultry' (an institution in Madras City for feeding famine victims) where it seemed to have some connexion with a deficiency of meat and vegetables in the dietary Among the prisoners in the Coimbatore jail this aphthous condition is reported to have extended to the gullet, assumed an aggravated form, and caused many deaths"

Assuming that a deficiency of nicotinic acid plays a part in the causation of stomatitis in rice eaters, one method of throwing light on the relation of stomatitis to pellagra and on the ætiology of either is the determination of the amount of nicotinic acid contained in food stuffs particularly rice and maize Preliminary investigations in the Nutrition Research Laboratories suggest that the poor rice eater's diet is not in all circumstances richer than the poor maize eater's diet in nicotinic acid, and this observation is against the hypothesis that stomatitis follows a partial deficiency of nicotinic acid, whereas in pellagra the deprivation is more severe At the same time it renders more puzzling the fact that true pellagra is largely a maize eater's disease One would naturally expect maize to be poorer than other cereals in nicotonic acid

The problem of vitamin B_2 deficiency in its clinical aspects needs further clarification We realise that the somewhat inconclusive results presented in this paper, and our attempts to explain them and relate them to those of other workers, leave many difficult questions unsolved

SUMMARY

(1) Various doses of nicotinic acid have been given to 24 rice eaters with stomatitis In 16 of these the glossitis was much improved, in 8 there was little change

(2) Stomatitis and the various lesions of the mucocutaneous junctions and skin, which sometimes accompany it, do not appear to be initial signs of true pellagra.

We acknowledge gratefully the assistance of Drs. J. E Measham, S. Dorai Raj, and K. P. S. Nambiar, and Capt T. Sommerville, I.M S, in the collection and treatment of cases. The work of the laboratories is financed by the Indian Research Fund Association.

REFERENCES

Aykroyd, W R, and Krishnan, B G (1936) *Indian J. med Res* 24, 41.
— — (1937) *Ibid*, 24, 707.
— — (1938) *Ibid*, 25, 643
Bajaj, N L (1939) *Indian med Gaz* 374, 145.
Katzenellenbogen, I (1939) *Lancet*, 1, 1260.
Landor, J V (1939) *Ibid*, 1, 1368
— and Pallister, R A. (1935) *Trans R Soc. trop Med Hyg* 29, 121
Moore, D G F (1937) *Lancet*, 1, 1225
Nair, V G (1939) *J Indian med Ass* 8, 1
Nicholls, L, and Nimalasuriya, A (1939) *Lancet*, 1, 1432
Porter, A (1889) The Diseases of the Madras Famine of 1877–78, Madras
Sebrell, W H, and Butler, R E (1938) *U S Pub Hlth Rep* 53, 2282
Spies, T D, Cooper, C, and Blankenhorn, M A (1938) *J Amer. med Ass* 190, 622.
Stannus, H S (1936) *Trop Dis. Bull* 33, 729, 815 885
Swaminathan, M (1938) *Indian J med Res* 26, 427
Trowell, H C (193)7 *Arch Dis Child* 12, 193
Williams, C D (1935) *Lancet*, 2, 1151.
Wright, E J (1930) Leitch's Dietetics in Warm Climates, London
— (1936) *Brit med J* 2, 707

EFFECT OF PROLACTIN ON LACTATION IN NURSING WOMEN

By Meave Kenny, M.R C S, M.R C O G.

FIRST ASSISTANT, DEPARTMENT OF OBSTETRICS AND GYNÆCOLOGY, BRITISH POSTGRADUATE MEDICAL SCHOOL, HAMMERSMITH (L C C) HOSPITAL, LONDON; AND

Earl King, Ph D. Toronto

READER IN BIOCHEMISTRY IN THE UNIVERSITY OF LONDON AT THE BRITISH POSTGRADUATE MEDICAL SCHOOL

(*With notes on the preparation of prolactin by* Norman Evers, B Sc, F I.C, *and* W. J Hurran, B Sc)

The finding of a lactogenic factor in the anterior-pituitary gland by Stricker and Grueter (1929a and b) has been confirmed by numerous workers—e g, Corner (1930), Gardner and Turner (1933), Selye, Collip, and Thomson (1933) Riddle, Bates, and Dykshorn (1933) have described a method for the preparation of an extract from ox pituitaries which is capable of inducing lactation in animals, and which they named prolactin Later Bates and Riddle (1935) described an improved procedure and a standardisation of the preparation by assaying its stimulating influence on the growth of crop-glands of pigeons. It is now customary to express the potency of prolactin preparations in terms of the Riddle crop-gland units

Prolactin prepared by their method is almost free from gonadotrophic activity but may contain the "glycotrophic factor" of Young (1936a and b), which diminishes the hypoglycæmic action of subsequently administered insulin and appears to facilitate the glycogenolytic response of the liver to the hypoglycæmia induced by insulin, although it does not induce glycogenolysis by the liver. Folley and Young (1937) increased the milk production of dairy cows by the administration of prolactin but found that the response in extra milk-secretion appeared to be related to the degree of glycotrophic activity rather than to the pigeon crop-gland activity

Kurzrok et al (1934) treated with prolactin 29 women in whom lactation had not developed adequately post partum · 21 showed a positive response in milk secretion, 4 a doubtfully positive, and 3 a negative Ross (1938), in a carefully controlled experiment, demonstrated a significant increase in lactation in nursing mothers Werner (1935) attempted to produce lactation in castrate girls by the combined use of œstrogenic hormones and prolactin Although there was some stimulation and development of the breasts, no milk was secreted.

Local reactions to injections of prolactin, accompanied by temperatures of 101° and 102° F. were described by Ross (1938) Werner (1935) described severe local and anaphylactic reactions, and, in a second communication (1939), warned against the use of present preparations of prolactin, which he considered were impure and unsafe for human use

METHOD OF INVESTIGATION

In early experiments carried out in the course of this investigation in the Hammersmith Hospital, in collaboration with Prof J Chassar Moir and Dr. J. D. Watt, the administration of small increasing doses of prolactin did not produce any of the ill effects noted by Ross (1938) and Werner (1935, 1939) There was, likewise, no evidence of a significant disturbance of carbohydrate metabolism. The small amounts of prolactin used, however, failed to produce any great increase in milk secretion, and the results appeared to be hopeful rather than conclusive

In the experiments described in this communication two preparations of prolactin, one from ox pituitary and the other from sheep, were administered to 43 women during the period of lactation The women were selected as deficient in milk secretion at different stages of this period up to the third month In 3 cases milk secretion was absent until administration of prolactin was begun on the ninth or tenth day after delivery. *All cases were followed up for at least three months, and most were seen during six or seven months.*

Classification of results—The response to administration was classified as positive, partial, or negative A positive response indicated that the increase in milk secretion was maintained at over 3 oz (100 c cm.) a day. This standard was adopted to correlate our results with those of Kurzrok et al (1934) and Ross (1938). As shown by figs 1, 2, and 3, the increased yield of milk was usually much greater Indeed, in 29 cases the amount became sufficient for the whole need of the baby until weaning at the sixth to seventh month In no case of a positive response did the secretion diminish after the preliminary rise; nursing continued to be satisfactory throughout the three to seven months during which the women were followed up by us

TABLE I—TYPE OF FEEDING USED 3–6 MONTHS AFTER IN TREATED AND CONTROL CASES

—		Breast only	Breast and complement	Bottle only	No information	—
TREATED— Response to prolactin	Positive	29	3	0	—	32
	Partial	0	2	1	—	3
	Negative	0	1	7	—	8
CONTROL		8	7	27	1	43

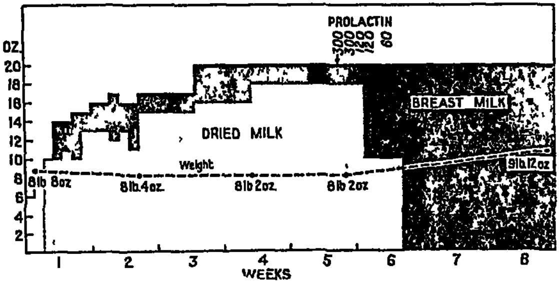


Fig 1—Positive response Lactation established after prolactin in 5th week, maintained to 7th month

A partial response indicated an increased yield of 1½–3 oz (50–100 c cm) of milk a day, or a larger yield which was not maintained when the injections of prolactin were stopped Thus, in the case depicted in fig 4, the increase amounted to 3 oz, 5 oz, 4 oz, and 5 oz a day during treatment but fell to only 2 oz thereafter, the discouraged mother weaned her baby three weeks later

An increase of less than 1½ oz (50 c cm) was classified as a negative response, a failure Table I shows that none of these women (19 per cent of the total treated) developed satisfactory lactation by other methods used subsequently

Controls—During the same months (September, 1938–May, 1939) 43 women classified as deficient lactators were observed as controls They were picked at random from among such women in the lying in wards, or, later, from those attending the postnatal and infant welfare clinics of the hospital Advice and encouragement, the electric or hand breast pump, breast massage, and such "galactagogues" as barley water, stout, or extra milk rations were prescribed in these cases Fig 5 and table I show that, in the early weeks of the period of lactation, these routine methods were completely or partially successful in a few cases In the later weeks (fourth to eighth) it became more difficult to elicit any notable increase in milk secretion by the rather casual means possible in an outpatient department, and all but the most enthusiastic mothers usually abandoned nursing entirely at this stage We do not suggest that the proportion of successes (21 per cent) in our cases represents the highest figure that can be reached by such routine methods, but we are assured by the medical officers of many infant welfare clinics that improvement is nearly impossible under ordinary outpatient conditions

Mode of treatment—Prolactin was given in the early stages of the period of lactation, when clinical experience or past history indicated that the patient would probably not have sufficient milk. In the later weeks deficiency or decrease in lactation was treated It is our present practice to begin treatment as early as possible, so that efficient nursing may be established before discharge from hospital

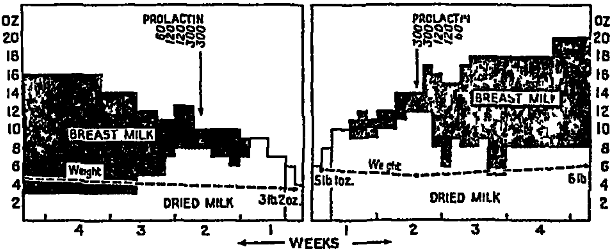


Fig 2—Positive response Premature twins Lactation established following prolactin administration on 12th day of puerperium Nursing satisfactory 5 months later

While the mothers were in hospital, the increase in the yield of milk was tested by weighing the baby before and after each feed After discharge the effects of prolactin were checked either by the weight of the baby before and after a specimen breast feed given in the outpatient department or by the description by the more intelligent mothers of the quantity of complementary feeding necessary for the [illegible] infants' daily needs The baby's development and weight were examined at each follow up visit in all cases

We employed a total dosage of [illegible] (000 Riddle units) of prolactin in each case, spread over five days, thus:—

First and second days [illegible] (2×200 R U)
Third and fourth days [illegible] (2×150 R U)
Fifth day 1 c cm [illegible]

The quantity was given by the intramuscular route into buttock or arm. To a few women [illegible] an injection of sterile saline [illegible] was given for eight hours before the start of treatment [illegible] This [illegible] therapy did not evoke a response in any case.

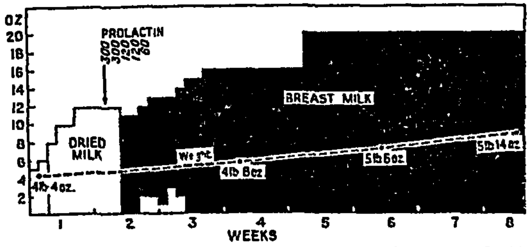


Fig 3—Positive response Premature child No milk secretion for 10 days Lactation established after treatment, maintained to 3rd month

RESULTS

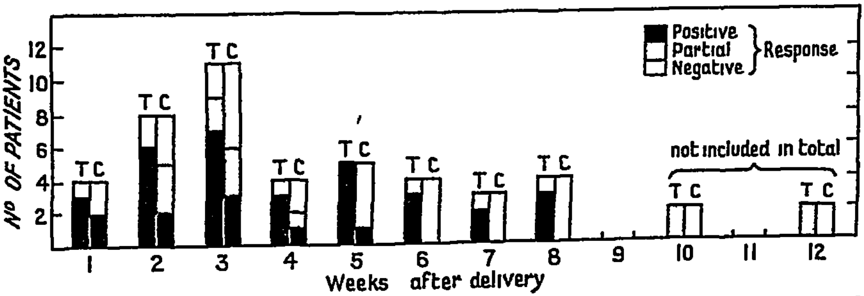
Fig. 5 shows that in three-quarters of the women with deficient lactation in the first eight weeks of the lactation period satisfactory nursing was induced with prolactin The table has been compiled after checking the type of feeding used at period 3–7 months after treatment The pride that the mother takes in her improved nursing ability undoubtedly helps to maintain the effect of the hormone throughout the normal period of lactation * Of our cases 11 who reached the stage of weaning during the follow-up had no difficulty in abating the breast secretion by the usual methods at the desired time.

A further few cases showed only a temporary or moderate increase of milk secretion after the administration of prolactin; and in 19 per cent. there was either a very small increase or none at all With the ordinary hospital or outpatient routine, in only 21 per cent of similar untreated controls was satisfactory lactation established, in 16 per cent a transient or moderate response was achieved, and in 63 per cent of cases we failed altogether to improve the yield of milk

Table II shows that the quality of the milk secreted after administration of prolactin is essentially the same as that of samples taken from normal untreated women

TABLE II—HUMAN MILK ANALYSIS

NORMAL LACTATION				PROLACTIN			
—	Total solids	Lactose	Fats	—	Total solids	Lactose	Fats
	g /100 c cm	g /100 c cm	g /100 c cm		g /100 c cm	g /100 c cm	g/100 c cm
Mrs A	13 2	4 78	4 32	Mrs F	12 9	4 32	2 31
				„ G	13 8	5 21	4 02
„ B	12 9	5 40	3 44	„ H	14 3	—	3 49
				„ I	11 8	6 90	2 21
„ C	14 5	5 24	2 47	„ J	14 2	5 31	2 97
				„ K	12 0	4 57	2 28
„ D	13 5	4 64	2 27	„ L	11 6	5 42	—
				„ M	11 7	5 42	—
„ E	13 0	5 61	—	„ N	11 8	5 17	—



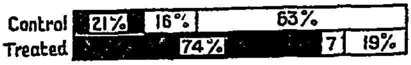


FIG 5—Comparison of treated and control cases showing results and period at which cases first came under observation Terms describing response are amplified in text

SIDE EFFECTS

No local or systemic ill effects have been noticed after the administration of prolactin There has not been complaint of excessive secretion or of engorgement of the breasts as reported by Morató-Manaro (1937); but it has come to our knowledge that two of our successfully treated cases are earning pin-money by selling their surplus milk to the human-milk bureau of a well-known maternity hospital

Glucose-tolerance tests have not shown any departures from those of control lactating women

A point raised by Nathanson and Fevold (1938) that large doses of prolactin may permanently disturb normal rhythm and even inhibit menstruation, is not borne out by the follow-up of our cases Thus, 28 treated women have resumed normal menstruation in the first five months of the lactation period, 11 in three months, and 4 by the sixth week after delivery.

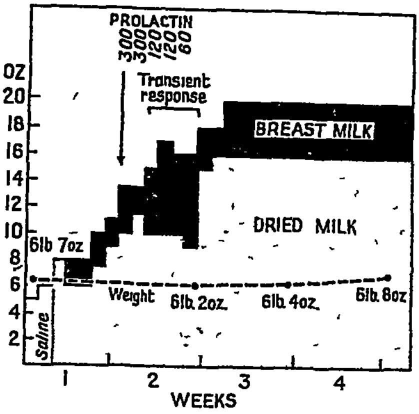


FIG 4—Partial response Transient small increase during course of prolactin not maintained Nursing unsatisfactory, discontinued at 2nd month

SUMMARY

(1) Two preparations of prolactin, one from ox pituitary and the other from sheep, have been administered to 43 women selected as deficient in milk secretion at different stages of the period of lactation

(2) The response has been very encouraging

(3) In the dosage described, the extracts appear to have no systemic or local ill effect Glucose-tolerance tests have not shown any departures from those of control lactating women Depression of the gonadotrophic function has not been observed

(4) The quality of the milk secreted after administration of the extracts is essentially the same as that of control samples

NOTES ON PREPARATION OF PROLACTIN

By Mr Norman Evers—Prolactin (Allen & Hanburys) has been prepared from *ox pituitary* by the method originally proposed by Bates and Riddle (1935), suitably modified for production on a large scale The method consists essentially in extraction of the anterior portions of ox-pituitary glands with alkaline alcohol at pH 9–10, followed by precipitation at pH 5 5–6 at a higher concentration of alcohol A solution of this crude fraction is reprecipitated at pH 3–4, to remove gonadotrophic and thyrotrophic activity. The insoluble fraction is further purified by iso-electric precipitation

The potency has been determined by the increase in weight of the crop-glands of pigeons, and the strength of the solution is standardised at 60 Riddle-Bates units per ml

---

* This contrasts happily with conditions shown in recent correspondence in the *British Medical Journal* (1938, 2, 729–1390) Thus, figures from Newcastle show that, although 87 8 per cent of mothers are breast-feeding their babies at the end of the lying-in period, after three months 58 4 per cent, and after six months only 34 7 per cent, are still nursing In Edinburgh, at similar epochs, the figures are 55 per cent and 38 5 per cent

Prolactin (A & H) is practically free from gonadotrophic and thyrotrophic activity

By Mr W J Hurran—Physolactin (Lactogenic Hormone, Glaxo Laboratories) is an extract of *sheep pituitary* prepared by a modification of the method of Bates and Riddle (1935) and has a potency of about 60 Riddle units of prolactin per ml The batch used in making the solution for the present work was extracted from sheep pituitary and has been examined for various physiological activities, which may be summarised as follows —

Prolactin 8–10 Riddle units/mg
Gonadotrophic activity traces
Thyrotrophic activity about 0·05 Rowlands Parkes unit *per mg*
Glycotrophic activity, measured by the assay method of Young (1938) such that 30–60 mg is sufficient to prevent the hypoglycæmic action of 2 units of insulin
Oxytocic activity none detectable in 10 mg

On a weight ratio basis amounts equivalent to about 800 and 200 times the total human dose have been administered respectively to immature rats and guineapigs for five days and have given no evidence of toxicity Attempts to induce anaphylaxis in guineapigs have given completely negative results

Our thanks are due to Dr F G Young and Dr Alan Moncrieff, to whose suggestion this investigation is due, for their continued interest in its course, to Prof Chassar Moir and Dr Watt, whose earlier experiments with prolactin in this hospital helped us to determine the optimal dosage, to Prof James Young, in whose department the work was carried out, to Dr Geraldine Maloney and Dr Rose Weinberg for their help with patients and literature, and to Mr Evers and Mr Hurran of Messrs Allen and Hanburys and Glaxo Laboratories respectively for generous supplies of the prolactin extracts This paper is published with the permission of Sir Frederick Menzies, chief medical officer, London County Council

REFERENCES

Bates R W and Riddle O (1935) *J Pharmacol* 55, 365
Corner G W (1930) *Amer J Physiol* 95 43
Folley S J, and Young F G (1937) *Proc Biochem Soc Chem and Indust* 56, 96
Gardner W U, and Turner C W (1933) *Mo Agri Expt Sta Res Bull* 196 5
Kurzrok R, Bates R W Riddle, O and Miller F G Jun (1934) *Endocrinology* 18 18
Morató Manaro J (1937) *Arch urug Med* 11 41
Nathanson I T and Fevold H L (1938) *Endocrinology* 22 86
Riddle, O Bates R W, and Dykshorn S W (1933) *Amer J Physiol* 105, 191
Ross J R (1938) *Endocrinology* 22 429
Selye H Collip, J B and Thomson D L (1933) *Proc Soc exp Biol N Y* 31 82
Stricker P Grueter F (1929a) *C R Soc Biol Paris* 99 1978
— — (1929b) *Pr méd* 37 1208
Werner A A (1935) *Endocrinology* 19 144
— (1939) *Ibid* 24 119
Young F G (1936a) *J Physiol* 87 13
— (1936b) *Lancet* 2 297
— (1938) *Biochem J* 32 1521

MEDICAL AID FOR CHILDREN IN RECEPTION AREAS —The Minister of Health urges evacuating authorities to give assistance to receiving areas by releasing as many medical officers, school dentists, nurses, midwives, and health visitors as possible Where an arrangement of this kind cannot be made and additional staff has to be engaged the cost will not fall on the receiving authority He stresses the importance in receiving areas of providing cheap milk and meals for expectant and nursing mothers and young children Sick bay accommodation should be provided in separate houses for children suffering from minor ailments or convalescent from more serious illnesses who cannot be properly cared for in private houses A trained nurse should be in attendance and children should be visited regularly by a medical practitioner Local authorities should also consider establishing mothers hostels within easy reach of the maternity homes for ante and post natal cases as well as hostels for problem children who are unacceptable in ordinary billets These should have a staff experienced in child guidance methods

---

BLOOD-GROUPING TECHNIQUE WITH TEST FOR SYPHILIS

BY A H WALTERS

(*From the Pathological Department, Albert Dock Hospital, London*)

ADDITIONAL attention is now being paid to the blood grouping both of recipients and of prospective donors In the shock room of the Albert Dock Hospital fracture clinic a simple and rapid technique has been evolved enabling blood to be classified anywhere and at any time The necessary apparatus (fig 1) consists of fifteen ordinary leucocyte-counting pipettes, a small bottle containing a 2 per cent solution of sodium citrate in physiological saline, a skin puncture needle, a small bottle of ether, pledgets of cotton wool, blood grouping serum types A and B, and Garrow's agglutinometer (Garrow 1917) Garrow's agglutinometer (made by Messrs Baird and Tatlock) is described as "an agglutinometer slab, a piece of plate glass 11¾ in long by 1½ in wide, divided into a number of partitions by double grooves running at regular intervals of 1 cm in order to prevent solutions from intermingling To promote intimate mixture of solutions the slab is made to revolve by means of clockwork at a uniform rate of 15 revs per min " (Manson Bahr 1935)

An agglutinometer is housed in a box with handle attached A number of leucocyte counting pipettes ether, citrate, &c , can be placed in the box all ready for use If blood is to be grouped anywhere in the hospital or outside, the box can be easily carried like an attache case to the scene and the grouping done there at once One complete set of apparatus as described is set up ready for use in the shock room on a trolley and covered with a distinctive coloured cloth Blood can be grouped there at the patient's side in about 1½ min The method appears to be almost foolproof

DONORS

Method —The pad of the prospective donor's third finger is cleaned with ether and punctured with a needle, and blood is sucked up into a leucocyte counting pipette to the mark 1 The solution of sodium citrate is next sucked up to the mark 2 The solutions are mixed in the usual manner by rotating the pipette several times The pipette is numbered 1 with a grease pencil and set down on the bench A similar sample of blood is taken from each prospective donor in turn (not more than fifteen are done at one time) and labelled with the appropriate number

Test —One or two drops of the citrated blood are first expelled from the leucocyte counting pipette, then a small drop (about 0 015 c cm) is placed directly on each of the first two partitions of the agglutinometer glass slab A drop of group A serum is placed on the first partition adjacent to but separate from the drop of citrated blood and a drop of group B serum is similarly placed adjacent to the drop of citrated blood on the second partition The agglutinometer is set revolving for 1 min after which it is stopped the glass slab is removed horizontally for closer inspection and the result is read Positive agglutination shows up as large coarse red floccuh The slab held a couple of feet above a white background of paper or a sink increases visibility by day and a torch shone up from underneath the slab makes reading easier at night The agglutinometer slab is divided into thirty partitions Hence, two partitions being used for each specimen, the blood of any number of donors up to fifteen can be classified at the same time.

Results.—This method has been in use for six months, during which several hundred sera have been tested against microscopical controls Doubtful or borderline agglutinations show up as fine red floccules and are just as easily spotted by the agglutinometer method as by the microscope (fig. 2)

RECIPIENTS

Before grouping a recipient's hæmoglobin percentage must be taken into consideration If it is not already known, it should be roughly estimated by Tallquist's method with white blotting-paper The concentration of red blood corpuscles in citrate solution for a donor with about 100 per cent of hæmoglobin, when the above technique is employed, is preferably 1 in 10 The recipient's hæmoglobin percentage should be divided by 100, and the figure thus obtained gives the amount of blood required in number of parts to be made up to a total of ten parts with the solution of sodium citrate Thus, if a recipient's hæmoglobin percentage is about 50, then 50 divided by 100 equals 2, which is the amount of blood required in number of parts to be made up to a total of ten parts with the solution of sodium citrate Blood should be sucked up from the recipient to mark 1 on a leucocyte-counting pipette, a slight amount of air drawn in to move the column of blood a very short distance up the pipette, and blood drawn in again from the finger up to mark 1 Citrate is then drawn in up to mark 2 on the pipette, thus giving the 2 in 10 dilution of blood required in this case. The resultant solution of citrated blood is then employed for grouping by the technique described above.

CROSS-GROUPING

Most of the donors reporting at the Albert Dock Hospital are of known group If the surgeon in charge decides that there is time for the recipient to be cross-grouped, 2 c cm of blood is drawn from the donor, preferably from the median basilic vein of the arm which is not being used for transfusion, and placed in a tube about 8 mm in diameter and 9 cm long The tube is placed at once in a small water-bath at 37° C for 25 min. This saves time by promoting rapid clotting of the red blood corpuscles The blood is then centrifuged for about 5 min (A portable hand centrifuge is all that is necessary.) About 0 5 c cm. of serum is then drawn off from the clot with a teat pipette In the meantime a citrated solution of the recipient's blood has been obtained as described above A drop of the donor's serum and a drop of the recipient's citrated solution of red blood corpuscles are tested on the agglutinometer for compatibility by technique as outlined above for groups A and B.

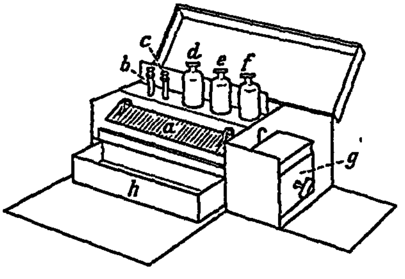


FIG. 1—Garrow's agglutinometer · (*a*) glass slab; (*b*) blood-grouping sera, (*c*) Laughlen's reagent, (*d*) citrate; (*e*) ether, (*f*) saline; (*g*) clockwork motor, (*h*) drawer to hold pipettes, cotton-wool, and needle.

TEST FOR SYPHILIS

Laughlen's reagent (Laughlen 1935) is used for the test for syphilis It is prepared commercially in tubes containing 1 c cm by Lederle Inc, New York Another tube, containing 1 c cm of a 10 per cent. saline solution is dispatched with every 1 c.cm. batch of antigen For activation, 0 15 c cm. of the 10 per cent saline solution is added to 1 c cm of Laughlen's reagent, and the tube is shaken and allowed to stand for twenty-four to forty-eight hours (preferably the latter) at room temperature before being used. It is stored at room temperature and remains active *for at least fourteen days* Amounts smaller than 1 c cm. of the antigen may be activated with saline if only a few tests are being done The inactive antigen lasts for months A date of expiry is printed on the packing of each batch The apparatus required consists of two 0 2 c cm pipettes (Kahn test pattern), a bottle containing a 0 9 per cent saline solution; and activated Laughlen's reagent

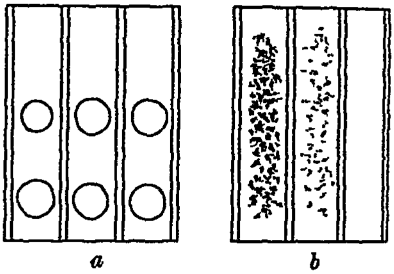


FIG. 2—Agglutinometer slab: (*a*) adjacent but separate drops before rotation; (*b*) three different results of test for syphilis after rotation: coarse floccules (strong positive); fine floccules (weak positive); and no floccules (negative).

Method—The remainder of the donor's serum is *placed in a water-bath at 63° C. for 3 min for complement inactivation* Next, 0 2 c.cm is drawn up into a Kahn pipette The pipette is held vertically over the agglutinometer and lowered until the tip just touches a partition on the *glass slab, and a drop of 0 013 c cm.* is delivered from the pipette. If several tests are being performed at the same time the pipette is washed out twice with the 0 9 per cent saline solution, and the outside of it is wiped dry with *a clean cloth each time between the deliveries of* drops of serum Next, the tube containing activated Laughlen's reagent is shaken up, and 0 2 c cm of the reagent is drawn up into the other Kahn pipette The pipette is held vertically as before, and *drops of* 0 01 c cm. of antigen are delivered on to each partition adjacent to a drop of serum The agglutinometer is now allowed to revolve for 5 min. If any drops are not mingling on any one partition *after 30 sec of rotation, the skin-puncture needle* may be drawn rapidly across the two drops to effect contact and rotation continued After 5 min of rotation the slab is taken out of the agglutinometer, *held horizontally, and examined for red floccules,* as in blood-grouping Then the slab is replaced and allowed to rotate again up to a total time of 9 min from the start of the test, after which the slab is again removed and examined Coarse red floccul indicate a strongly positive reaction, and fine floccul indicate a weak or doubtful syphilis reaction If possible, it is desirable to use controls of known positive and negative sera

Results obtained with the Laughlen reaction on 400 sera with this technique agreed within 98 per cent with the Kahn test (Walters 1939) Laughlen (1935) found the reaction to be 99 per cent in agreement with the Kahn test, and Robinson and Stroud (1937) found 97 per cent agreement with the Kahn test in 1000 sera tested The Laughlen reaction may be considered a useful general rapid test for syphilis, subject to later confirmation by the Kahn test in all sera giving a doubtful positive result

SUMMARY

A rapid technique for blood grouping is described which can be carried out under almost any conditions , and a rapid method of cross agglutination and syphilis test for donor is given

My thanks are due to Dr H M Hanschell, director of the V D clinic, and to Mr H E Griffiths, director of the fracture clinic, of the Albert Dock Hospital, for permission to publish this paper

REFERENCES

Garrow, R P (1917) *J R Army med Cps* 28, 566
Laughlen, G S (1935) *Canad med Ass J* 33 179
Manson Bahr, P H (1935) in Manson s Tropical Diseases, 10th ed London p 552
Robinson F H and Stroud G M (1937) *J Amer med Ass* 108 1170
Walters, A H (1939) *Brit J vener Dis* 15 228

Clinical and Laboratory Notes

ESTIMATION OF SULFAPYRIDINE
(M & B 693)

BY H H VAN DER ZOO DE JONG, Ph D
(*From the Medical Department of the University Hospital, Groningen, Holland*)

DURING the administration of sulfapyridine frequent quantitative estimations of the drug in the body-fluids are necessary for control, and a rapid method for estimating its concentration is therefore desirable The method here proposed is a modification of that put forward by Marshall, Kendall Emerson and Cutting (1937) It allows many estimations to be done with small quantities of material in a short time

The diazotisation of sulfapyridine has been shown to take place rapidly in an aqueous acid solution and not in an alcoholic acid solution Traces of sodium nitrite suffice, while larger quantities may prove deleterious, especially with low concentrations of sulfapyridine The addition of dimethyl α naphthylamine, however, leads in a 70 per cent alcohol solution to a very rapid development of the colour, and the colour develops slower with lower alcoholic concentration The red violet colour produced is compared with a standard aqueous solution of phenol sulphonephthalein containing added sodium phosphate The comparison may be done in any of the usual models of colorimeter The total sulfapyridine can be estimated in the same manner if the solution contains 10 per cent trichloracetic acid and is heated in a boiling water bath for half an hour The procedure is as follows

First 1 c cm of serum or other body fluid is mixed with 2 c cm of distilled water ; then 1 c cm of 20 per cent trichloracetic acid (20 g trichloracetic acid dissolved in 80 c cm water) is added drop by drop with shaking After standing for five minutes the liquid is centrifuged or filtered through a small dry filter To 1 c cm of the filtrate is added 0 1 c cm (two drops) of a 0 15 per cent solution of sodium nitrite After two minutes 3 c cm of a 0 1 per cent solution of dimethyl α-naphthylamine in 95 per cent alcohol is added and the whole mixed by shaking After standing for five to ten minutes the colour is compared with the standard If the colour is much stronger than the standard the liquid must be diluted with the solution of dimethyl α-naphthylamine

By precipitating the proteins in serum by a dilution of 1 4, as above, we recovered 94 per cent of added sulfapyridine at a concentration of 5–10 mg per cent and 100 per cent at a lower concentration The standard is made up from a stock solution prepared as follows

Dissolve exactly 20 mg of phenol red and about 1 g of disodium hydrogen phosphate ($Na_2HPO_4 2H_2O$) in distilled water and make the solution up to 100 c cm The standard for use is made by dissolving about 1 g of disodium hydrogen phosphate in water, adding 5 0 c cm of the stock solution and diluting it to 100 c cm

The standard corresponds to a concentration of sulfapyridine of 10 mg per cent , or 2 5 mg per cent without diluting four times It is advisable to control the standard at the beginning and at intervals with an acidified sulfapyridine solution of known strength It is possible to use the same procedure as a micro method by reducing the quantities of the different solutions The free sulfapyridine in the filtrate is determined in this way To determine the total sulfapyridine the process is as follows

Dilute in a graduated tube 1 c.cm of trichloracetic filtrate with half its volume of 20 per cent trichloracetic acid (non protein fluids with an equal volume) and heat the tube in a flask with boiling water for half an hour After cooling adjust the volume to 1 5 c cm with water , then add 0 15 c cm (3 drops) of 0 15 per cent sodium nitrite solution and after two minutes 1 5 c cm of dimethyl α naphthylamine The colour can be compared after five or ten minutes The result must be multiplied by 1 5

REFERENCE

Marshall, E K Cutting W C, and Emerson K (1937) *J Amer Med Assoc* 108, 953

ARCUS LIPOIDES OF THE EAR-DRUM

BY J BIRBRICH, M D
FORMERLY PROFESSOR FOR EAR NOSE AND THROAT AT FRANKFORT ON MAIN

FROM the middle of last century it has been known, through the investigations of Canton (1851) Virchow (1852) and His (1856), that an opacity consisting of pathological deposits of "fat" often develops in the cornea near the margin of the iris This opacity, being found mainly in elderly people, was called arcus senilis corneæ It was soon shown, however, to develop sometimes in younger people persons under 30 (De Lieto Vollaro 1910) and children (Attias 1912 Joël 1924 Versé 1925, and Rohrschneider 1925) Since there was no difference between the morbid histology of the arcus senilis and that of the arcus juvenilis Versé rightly suggested that both of them should be called the arcus lipoides corneæ he based his conclusion principally on the results of experiments on animals All who systematically search for the arcus lipoides in hospitals are bound to admit that this change is seen far more frequently than one might at first suppose, and above all, that *it is by no means only a sign of old age* When the arcus is not macroscopically recognisable it can sometimes be demonstrated with the slit lamp microscope, with which it is most interesting to follow the increasing deposition of lipoid in the cornea

The relation of the arcus lipoides corneæ to disturbances in the metabolism of fat and lipoids is already well known to the ophthalmologist On the other hand, the relation between metabolism and diseases of the ear, throat, and nose is not so well known Few authors have investigated this problem, and so far they have not succeeded in establishing the relation between ear-diseases and changes in metabolism For fourteen years I have studied this subject (Berberich 1925a, 1925b), my findings have been confirmed by a few investigators, who have accepted their significance, but so far they are not generally recognised as facts by all ear specialists and specialists for internal diseases For these reasons, after many years of experience, I mention here some of my conclusions

Lucae (1864) demonstrated the presence of droplets of fat in a fresh specimen of the ear-drum, without being able to explain it, he assumed that it was a local fatty degeneration. It is only in recent years that the examination of the ear-drum, magnified twenty or thirty times, has been possible with the aural microscope For histological examination the petrosal bone has to be decalcified, and this, together with the usual celloidin embedding, makes a proper examination of the fats practically impossible Only when gelatin was substituted for celloidin was it possible to demonstrate with stains the presence of fat in the petrosal bone

In research on the metabolism of the blood-serum and urine and on basal metabolism I studied the arcus lipoides of the cornea and, like other authors, was able to demonstrate a hypercholesterolæmia when the arcus was present. Examining the ear-drums of these patients I detected similar changes, which I reported (Berberich 1925b): a semilunar greyish-white ring above, parallel to, and about ½–1 mm away from the limbus (where the drum is attached to the bony wall of the auditory canal), towards the centre of the drum, but easily distinguished from the drum Towards the periphery of the drum this silvery greyish-white ring is sharply demarcated, towards the centre, however, its outline is often indistinct. This crescentic ring, which can easily be seen by simple otoscopy, usually occupies only the lower half of the ear-drum Nevertheless, in many cases it may also be seen in the upper half, when it is usually narrower and more delicate

Histological investigations have shown that this ring is a deposit of cholesterol and neutral fats in the substantia propria of the ear-drum—i e, the condition is the same as in the cornea Lipoids are deposited in the ear-drum in the immediate vicinity of the marginal network of the capillaries in the ear-drum—i e., in an anatomical position similar to that described by Versé in the margin of the cornea This ring-shaped opacity on the ear-drum is called the arcus lipoides myringis, because the deposit on the cornea is always present in hypercholesterolæmia, which does not depend on the patient's age, and because both opacities are histologically identical, as proved by experiments on animals Whereas the normal ear-drum of the rabbit contains no lipoid, this substance is invariably found, in a crescentic deposit similar to that already described, in a rabbit fed on cholesterol. In more than 200 animals fed on cholesterol for other purposes it was always possible to demonstrate this condition in the ear-drum Nakamichi (1922) has confirmed these changes

Clinically I have observed the arcus lipoides myringis for more than ten years The amount of lipoid deposited in the ear-drum differs in different people, and in the same person it can vary at short intervals, an observation that can also be made on the arcus lipoides corneæ Differences in the degree of development of the arcus lipoides myringis may exist between the right and the left ear-drums With practice and careful otoscopy it is possible to recognise early stages of the lipoid deposit in the ear-drum. The aural microscopes lately introduced will render its diagnosis much easier

The parallelism between the arcus in the cornea and that in the ear-drum is also worth mentioning, although here too fluctuations in intensity are observed

If irritation is caused—e g., by spontaneous or by artificial perforation or by scar-formation—when an arcus lipoides is present on the ear-drum, greyish-white streaks can be seen leading from the arcus to the site of irritation; histologically these streaks also are lipoid deposits Calcium can be deposited later in these lipoid foci These changes may easily be reproduced in experimental animals; the same is true of the lipoid deposit in the cornea of the rabbit

Finally, those diseases of the ear have to be considered in which a hypercholesterolæmia is present—i e, those which tend to produce an arcus lipoides I have found a hypercholesterolæmia with arcus lipoides in cases of recurrent plugs of cerumen, in many cases of deafness in older people (presbyacusia), in many cases of hyperpiesia with deafness or with noises in the ear, and in many cases of ear-disease in diabetes I confirmed the diagnosis in all these cases by biopsy of the petrosal bone I can therefore conclude, from my many examinations and from those of others who undertook the re-examination, that the presence of an arcus lipoides myringis and of an arcus lipoides corneæ affords sufficient evidence of hypercholesterolæmia

SUMMARY

Analogous to the arcus lipoides cornæa, an arcus lipoides myringis is described which consists of a deposit of cholesterol, neutral fat, and fatty acids, identical with the arcus of the cornea

The arcus lipoides is caused by hypercholesterolæmia, of which it is an infallible sign

Thus the arcus lipoides is found in those ear-diseases which are accompanied by hypercholesterolæmia—e g, recurrent plugs of cerumen, most cases of deafness in old age, hyperpiesia, and often diabetes.

In experimental animals these changes can be reproduced exactly by feeding them on cholesterol.

REFERENCES

Attias, G (1912) *v Graefes Arch Ophthal* 81, 505
Berberich, J (1925a) *Z Ohrenheilk* 72, 448
— (1925b) *Klin Wschr* 4, 2335
Canton, E (1851) *Lancet*, 1, 38, 63
De Lieto-Vollaro, (1910) *Arch Ottalmol* 18, 345
His, W (1856) Beiträge zur normalen und pathologischen *Histologie der Cornea, Basel*
Joël, E (1924) *Klin Wschr* 3, 269
Lucae, A (1864) *Virchows Arch* 29, 78
Nakamichi, N (1922) *Trans Jap path Soc* 12, 106
Rohrschneider, W (1925) *Klin Mbl Augenheilk* 74, 93
Versé, W (1925) *Verh dtsch path Ges* p 67
Virchow, R (1852) *Virchows Arch* 4, 261

A SELF-ADHESIVE BANDAGE —We have received from Stanning Proprietaries, Stanbrook House, 2-5, Old Bond Street, W 1, a specimen of a self-adhesive bandage, marketed by them under the name of "Stanlast" This bandage only adheres to itself and does not stick to skin or hair It can be painlessly removed as quickly as it is applied, without leaving any adhesive substance behind It incorporates elastic which permits freedom of movement whilst giving full support, and it is not affected by moisture or body heat. Samples of the bandage will be supplied free on request.

REVIEWS AND NOTICES OF BOOKS

Cæsarean Section, Lower Segment Operation

By C McIntosh Marshall F R C S, honorary, assistant surgeon, Liverpool Maternity Hospital Bristol John Wright and Sons 1939 Pp 230 21*s*

The title of this book gives little clue to its character, scope or production The author has set down concisely, yet in full, the history of the operation, the varied technique that can be employed, together with his own impressions on the value of each method, the results that may be expected, the instruments that may be used to make the procedure easier and safer, and the anæsthetics that are advised in various circumstances Wherever necessary the text is illustrated and many of the really beautiful illustrations are in colour

The book is based upon the author's experience gained from a series of 246 cases There was no maternal mortality, and fœtal mortality was only 5 per cent That the author upholds the lower segment as against the classical operation under all circumstances is soon apparent His results bear out his opinions but he does not underrate the dangers of even this form of cæsarean section A number of these dangers may, he believes, be reduced if detailed attention is given to technique and anæsthesia The lessened likelihood of sepsis more than compensates for any possible additional risk when the lower route is used in a case of placenta prævia The author answers every criticism of the operation that has come to his notice and his reasoning is impressive The book is for the obstetrician not the pure surgeon it is written on the assumption that the reader knows when, and when not to operate

Über die integrative Natur der normalen Harnbildung

By Gösta Ekehorn D M Stockholm Helsingfors Mercators Tryckeri Pp 1131 (3 vols)

This is not a comprehensive survey of the secretion of urine as its length might lead one to suspect, but a thesis setting forth the author's personal views on the process It is so long because of continual recapitulation and summarising and the third volume is entirely devoted to a general survey of the conclusions arrived at in the first two The author states that his outlook was inspired by Sir Charles Sherrington's views on the nervous system having as its basis the concept of physiological integration Unfortunately the closely knit arguments necessitated the use of the German language, with which Dr Ekehorn was more familiar than English The value of the book lies in its lengthy discussion of the cellular mechanisms involved in the production of urine, a topic which has been neglected since the collapse of the "mechanism versus vitalism controversy The filtration reabsorption theory is taken as a working basis and creatinine is assumed to be neither secreted nor absorbed by the tubules, this postulate allows a calculation of the volume of glomerular filtrate In actual fact recent work shows that creatinine is probably in part secreted by the tubule cells Nevertheless the author's assumptions are close enough to the truth not to invalidate his main arguments After commenting with unnecessary frequency and vigour on the deplorable state of the subject as he found it and the poor quality of much of the literature he points out that more use might have been made of ascertained facts to clarify the way in which urine is concentrated Physiologists have been so preoccupied with filtration and reabsorption in themselves as to forget that it is the relation between them which is important The quantity of chloride filtered for instance, may be high at one determination and low some minutes later, but so long as the quantity reabsorbed varies in proportion, the rate of excretion remains constant But whereas the quantities of the threshold substances finally excreted depend on the fractional completeness of their reabsorption from the glomerular filtrate, non threshold substances are eliminated in proportion to the absolute amount filtered The passive reabsorption of such substances, and the tendency of disease to break down the resistance of the tubules to them, receive detailed consideration The innumerable factors influencing glomerular filtration are pointed out, and the fallacy of selecting a single determinant as the regulator of any process is condemned Rather is the intensity of each process determined by an almost infinite interplay of allied and antagonistic factors, whose integration results in the delicacy, adequacy and adaptability found in renal function Although more objective unravellings of renal activity are to be found in recent American literature Dr Ekehorn's book provides a welcome mental exercise, all too rare nowadays

Transactions of the American Association of Genito-Urinary Surgeons

At the fiftieth annual meeting of this society many interesting papers were read of which we may select two for mention

G F Cahill points out that *adrenal cortical syndromes are more often seen without any demonstrable* adrenal cortical tumour than with a tumour Adrenal syndromes more often show sexual changes towards adult masculinity in the female than towards feminisation of the male They may also make their presence evident by advancing maturity in the young or senility in the mature In some cases there are general metabolic changes, more particularly in the plasma, skin and fatty tissue and in the psychological status Cahill uses X rays, after injection of air, in order to reveal the tumour Abnormal excretion of hormonal substances in the urine seems to vary with the sexual change, and may be present whether there is a tumour or not This excretion of hormone may be reduced by removal of the tumour, or if no tumour is present by a partial excision of the adrenal cortex The possibility of the existence of a hormone that is specific to adrenal tumours is also suggested Removal of the tumour leads to symptomatic cure but does not correct fixed anatomical changes, such as hirsutism

In experiments on the *transplantation of endocrine tissue* W I Lower and Eugene Cutuly found that the tip of the ear of a rat was an excellent site for the implantation of grafts, not only because of the good blood-supply but because it is easy to watch the growth of the transplant Over 100 grafting experiments were made by this method All those in which adult tissue was used proved negative but successes were *attained* when *grafts* were *taken from* newborn rats Amongst other tissues transplanted were testis prostate, seminal vesicle, pituitary, ovary adrenal thyroparathyroid, and pancreas Testis grafted into the ear has not so far developed spermatogenic function but it is possible that if it is left longer than six months some activity will be noted in the seminiferous tubules It is generally supposed that it is the thermoregulation provided by the scrotum that allows of spermatogenesis and Lower and Cutuly suggest that the tip of the ear may provide conditions suitable for this function

The Needs of Youth

By A. E Morgan, M.A., LL D London: Humphrey Milford, Oxford University Press 1939. Pp. 434. 10s.

Dr Morgan formerly principal of University College, Hull, and later vice-chancellor of McGill University, was invited by the council of King George's Jubilee Trust to inquire into the bearing of educational and industrial conditions in this country on the development of adolescent boys and girls. He has surveyed the whole problem in an impartial and scientific spirit In pursuit of his inquiries he has journeyed to the four corners of the kingdom and visited over 150 villages and towns This book reports his results "After a year of travel," he writes, "I am left with two main impressions · an appreciation of the great work, public and private, paid and unpaid, which is done for the benefit of youth, and a deep sense of the vast amount that is at present left undone." Among other urgent measures, he presses strongly for a periodic medical examination for all who enter industry. "it should not be limited to those who come within the scope of the Factories Act, but should be extended to every juvenile worker" In addition to the obvious need for improving the hygienic conditions of life and work, there are, he declares, two specific conclusions that stand out in relief: "The first is that the boy and girl must not be thrown into the world of work at 14 the educational process must continue on a compulsory part-time basis until 18; and the second, that the educational process must be so organised that it fits the growing citizen, not only for work, but for the increasing problem of leisure In the early days of industrialisation, youth was wasted as a worker; today it is in the hours of leisure that waste is proceeding at the most rapid rate"

NEW INVENTIONS

A FRAME-AND-HURDLE BEDREST

Bedrests will now be needed in large numbers in some institutions which are being transformed into hospitals In order to meet this want, a simple piece of furniture has been designed, which could easily be made in large quantities by the hospital carpenters

At the Horton Hospital, where I am working, there are two types of bed: one has a fairly high back at the head; the other, a new "Army" bed, is rather higher, and has only a low crossbar at the head and at the foot. The bedrest here described can be used with either type of bed

Frame—One part is a simple frame, 2 ft. 1 in × 2 ft 7 in, made of 3 × 1¼ in wood, with halving joints at the corners. The space is filled in with criss-cross pieces of 2-inch webbing (25 feet in all) Across the back, 8 in. from the top, crossing the long axis, a narrow piece of wood is secured transversely by screws, projecting about an inch This batten prevents the bedrest slipping down, when it is leant, at an angle of about 60° to the mattress, against the head of the bed With pillows piled in front of it, the frame acts as an efficient bedrest when the bed is one which is furnished with a back (fig 1)

Such a frame can also be placed under the mattress Resting on the bar at the foot it will raise the legs If the bed is one with no back, it will raise the head and shoulders If two frames are raised by two bed blocks. placed under their adjoining edges on the side frames of the bed at about its centre, the knees can be raised; and, when combined with a third frame behind the shoulders, the patient can be placed in Fowler's position (fig. 1) The frames can also be used to give a position suitable for bronchial drainage or to provide a slope for the whole mattress. Two holes are bored in each side of a frame, through which a short cord can be passed, if it is necessary to lash the frames together.

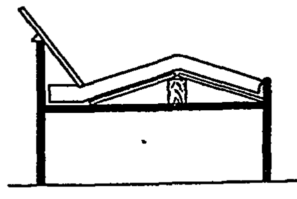


Fig. 1—Frames in situ for Fowler's position

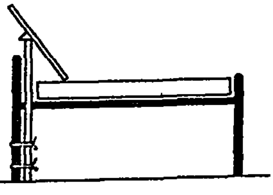


Fig. 3—Hurdle and frame

Hurdle (fig 2)—The other part is the "hurdle" This consists of two uprights, with a bar across the top, and one about halfway up, just above the level of the horizontal bars of the bed The span just exceeds the width of the bed, say 2 ft 5 in The height is 3 ft. 10 in, and it is made of 1½ × 1½ in. wood. These "hurdles" are for use when the bed has no back The hurdle is placed astride the bed just in front of the bar at the head The legs of the hurdle are lashed to the legs of the bed at the head end with the lower of the two cords attached to the "hurdle" legs When fixed in position the "hurdle" stands firmly The "frame" can then be leant against it (fig 3)

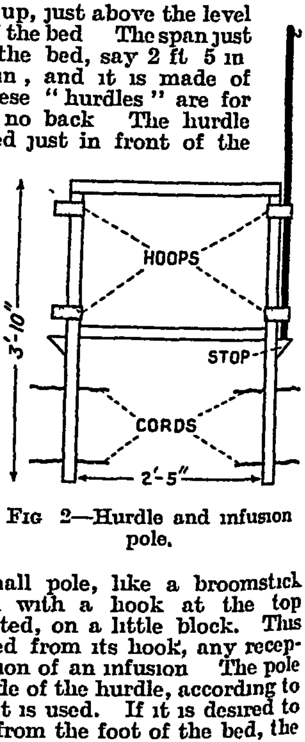


Fig 2—Hurdle and infusion pole.

Infusion pole.—Near the top of the outer surfaces of the uprights of the hurdle on either side are two projecting loops of galvanised metal, about a foot or more apart. These can receive a small pole, like a broomstick some 3 ft. long, fitted with a hook at the top and resting, when inserted, on a little block. This pole supports, suspended from its hook, any receptacle for the administration of an infusion The pole can be fitted on either side of the hurdle, according to which arm of the patient is used. If it is desired to administer the infusion from the foot of the bed, the hurdle can be fixed there also, for the uprights are bored for cord about 18 in. from the ground, and the four lashings will hold it fast.

As the metal loops are "staggered," that is to say, at slightly different levels on the respective sides, one can easily hinge two hurdles together by the infusion pole and improvise a clothes-horse for drying mackintosh sheeting and the like. Three hurdles with poles round the head of the bed, when draped with a sheet, will provide a bronchitis tent

It is thought that a "frame-and hurdle" bedrest such as this, which can be easily and cheaply put together, may have several useful purposes at the present time, when shortage of some supplies necessitates improvisation With a little ingenuity, the number of uses to which it can be put is quite considerable.

Terence East, D M. Oxfd F R C P.
Physician i/c Medical Division, Horton Hospital, No 9 Sector, Emergency Medical Service

THE LANCET

LONDON SATURDAY, OCTOBER 14, 1939

AMPUTATIONS

AT the outbreak of the last war the amputations provided an extreme example of orthodoxy enthroned Their description occupied many pages of the textbooks Each bore the name of some honoured pioneer, each was described in steps that followed with the logical march of those in a proposition of Euclid Students were taught to curtail limbs at all levels and through any joint by flaps of remarkable ingenuity But no assessment of the relative value of these classical procedures was ever attempted, and the surgeon who would choose between the merits of several amputations or wished to know the type of limb that could be fitted afterwards, or the service it would give, could look in vain for guidance

This didactic outlook was due to two causes that amputations, which had formed a large part of surgical practice in the pre Lister epoch, had almost vanished in that happy interlude between the disappearance of wound infection and the appearance of the motor-car, and that, in an age when operative surgery as a whole was growing and changing with kaleidoscopic rapidity, the amputations provided, with the ligatures of the main arteries, a group of stable and stereotyped technical procedures wherewith the anatomical knowledge and manual skill of the surgical candidate might be put to the test Thus it came that in 1914 the surgical outlook on amputations was very much that of the Crimean war At the same time the manufacture of artificial limbs remained a craft rather than a science The supply was in the hands of a number of firms, most of them small, the prostheses available were, judged by modern standards, heavy, expensive, and not always efficient Patients with well healed stumps of reasonable length could be fitted with satisfactory apparatus, but many of the more difficult cases were obliged to do without Moreover, owing to the difference in the products of the various firms the amputee was obliged to return to the original supplier whenever his limb needed renewal or repair

Today, as the result of the war, and more particularly of the enlightened and progressive policy adopted by the Ministry of Pensions in dealing with limbless soldiers, the position has changed entirely An account of the experience gained by the medical officers of the Ministry in providing artificial limbs for the 12 000 officers and men of our fighting forces who suffered amputation as the result of service is given in a handbook [1] which has just been issued Small as it is, this provides a comprehensive survey and will prove invaluable to the practising surgeon One sees that the main result of these twenty years of experiment and study has been a progressive simplification of methods and of apparatus The classical amputations have disappeared, and in their place we find a description of four ideal amputations with indications of the next best stump where the ideal is impossible Broad principles established by repeated instances and prolonged observation replace tradition and precept The prostheses that have been evolved during the same period show an advance equally dramatic and equally creditable to the foresight and labour that has achieved it The modern limb is in every way better than its predecessor—lighter, stronger, simpler, more comfortable and more efficient Further, by extended research, by the employment of new alloys, by pooling the resources and inventions of many firms, and by manufacture on a large scale, their price has been reduced while their reliability has been advanced In place of endless gadgets we now have a few standard "set ups" round which limbs to suit any particular amputee can be constructed As a result men can do things with artificial limbs that were previously impossible, and many, with stumps that would have been regarded a few years ago as hopeless problems, can now be fitted with apparatus that allows them, not merely to get about, but the chance of useful employment

Where all is so valuable, it is difficult to pick any particular passage in the handbook for comment Emphasis is once again laid on the experience of the limb fitter that long stumps are unsatisfactory, but, on the other hand, a knee disarticulation and a Syme seem to last better than an amputation in the lower fourth of the thigh or leg To amputate at the shoulder and hip leaving the head and neck of the bone is infinitely better than to disarticulate at these joints Amputations below the knee for thrombo angiitis are almost inevitable failures Inadequate rest in the early stages of repair will often spoil a well made stump for subsequent use, on the other hand secondary operations such as those for nerve bulb and painful limbs are rarely justified The Syme amputation is weighed in the balance and, on the whole, found wanting, but it is interesting to note that the average period before reamputation becomes necessary is eight to nine years Surgeons who have seen many good Symes may be allowed to wonder whether, for the man whose limb is not supplied and kept in repair by a government service, and for him whose job may take him many weeks from a workshop, this well tried operation may not still be performed

This book will have a permanent influence on surgical thought and teaching The reader is left with a profound feeling of satisfaction, not least in the concluding phrase that "from comparisons made at first hand the types of limbs and appliances provided by the British Ministry of Pensions are the best obtainable in material and workmanship, finish and fit"

---

[1] Artificial Limbs and their Relation to Amputations By Medical Officers of the Ministry of Pensions London H M Stationery Office 1939 3s

RESPIRATION IN UTERO

Until lately it was taught and commonly accepted that the infant does not begin to breathe until it is expelled from the uterus. A strong case, however, has now been made for the belief that respiratory movements start very early in the career of the embryo. From their observations on sheep Sir Joseph Barcroft and D. H. Barron[1] deduce that these specialised movements develop from generalised mass movements appearing early in fœtal life. At first—i.e. about the 34th day of the 147 days' gestation—they consist in a very restricted but organised reflex · contractions of the neck muscles are evoked by stimulation of a skin area just underneath the eye During the next few days stimulation of the face will produce a general movement of the whole musculature, often not in a single spasm but in a series of spasms amounting to a rhythm. The so-called spontaneous movements appearing about the 38th day may be regarded as reflex responses to movement of the uterus transmitted through the amniotic fluid.

Barcroft and Barron think that these rhythmic groups of spasms, the frequency of which is about two a second or less and the duration ½–¾ min, are the bases of respiration (and also of other types of movement). By the 44th or 46th day little remains of the rhythmic spasms except contraction of the muscles of respiration, and any trifling somatic movement of the fœtus will initiate it. The stronger the somatic movement, the more frequent and deeper is the respiration Meanwhile the first movement also differentiates along other lines, and on the 49th day a tap on the nose or rump will produce first "an effort to stand up," and secondly a pause, and thirdly a rhythmic respiratory discharge By the 60th day, however, these movements have been inhibited and the fœtus becomes quiet. The inhibition may be released in three ways. The first is by asphyxia, if the umbilical cord is pinched, the series of somatic and respiratory movements is set on foot, though the connexion between the two groups becomes less close. Secondly, exposure has the same effect And thirdly, suitable section of the brain will remove inhibition in varying ways. Experiment suggests that respiratory movement is inhibited from a centre in the upper part of the fore-brain; a longitudinal section in the middle line will liberate respiration as completely as will a transverse section. Barcroft and Barron conclude that respiratory movements in the fœtal sheep in the later half of pregnancy are the result of a battle between inhibition and sensation. Normally the inhibitory centre has control, but if it is weakened or abolished, or if general sensation is stimulated so strongly as to overcome it, impulses will pass from the respiratory centre to the phrenic nucleus and respiratory movements will take place.

The possible inferences relating to human respiration in utero are important. Prof Ehrhardt[2] has lately described radiological observations which indicate that the human fœtus drinks the amniotic fluid In a series of cases in which pregnancy had to be artificially terminated, he injected 4 c cm of Thorotrast into the amniotic cavity, and he found that about 15 or 18 hours afterwards most of the contrast substance had been deposited in the colon of the fœtus. This drinking function begins before the fifth month In the course of these investigations he noted in several fœtuses that thorotrast appeared also in the lung-tissue and cast a fairly dense shadow; from which he inferred that the fœtus inspired as well as swallowed the amniotic fluid. The *Calcutta Medical Journal* for March, 1939, cites experiments by Prof. F. F Snyder of Johns Hopkins University in which carbon particles were demonstrated in the alveoli a minute after indian ink had been injected into the amniotic fluid. All these observations suggest that the aspiration of fluid is not an accidental consequence of labour but a normal consequence of fœtal respiration, and a means of dilating the future air-passages When therefore a newborn child fails to breathe, the question to be asked is not what should cause the first breath, but what has interfered with existing respiratory movement.

RADIUM

The radium owned by or loaned to hospitals throughout the country would be a source of serious danger in a bombardment from the air, for according to a memorandum issued by the Radium Commission (see page 863) the blast of a high explosive bomb exploding within 25 feet of radium containers, unless they were of especially massive construction, might burst the containers and scatter the radium in the form of dust. Such radium dust would be lethal if inhaled and would be difficult to recover, so that the area where it escaped would remain dangerous for a long period. Unfortunately most of the major radium centres are in large industrial towns, such as London, Manchester, Birmingham, Liverpool and Glasgow, where risks of air-raids are greatest The Radium Commission and the King Edward Fund therefore advised the London hospitals and the national centres to make bore-holes into which their radium could be lowered to a depth where it would be safe even from a direct hit This summer the holes were made, fifty feet deep and eleven inches in diameter on the artesian-well principle, and when war was declared most of the country's radium was lowered into safety. In a bore-hole, unfortunately, radium is no longer available for treatment, and although it can be replaced to a large extent by X rays, which are free from potential dangers, there remain types of cancer—more particularly in the mouth and cervix—where radium therapy is essential.

An attempt must clearly be made to reconcile the interests of the cancer patient with those of the community There seem to be three possible ways in which this can be done First, treatment may still be carried out in the hospitals in vulnerable areas, provision being made to lower the radium down the bore-hole on receipt of an air-raid warning. This method has been attempted at several centres and has allowed a certain number of cases to be treated, but its disadvantages are great. It allows radium to be used only where it can be removed quickly, thus restricting treatment to surface and intracavitary applications, implantation being impossible The time between an air-raid warning and the actual raid is doubtful, and even a well drilled team may find difficulty in removing the radium and getting it to the borehole quickly enough Trained staff must always be available, which involves not only inconvenience but some additional risk to valuable personnel Secondly, radium in solution may be used to produce radon, the emanation plant being erected in a cavern or mine at a depth which ensures complete safety The emanation may then be used for the treatment of patients in any hospital, such treatment involving no risk because of the short life of the emanation This is a practical plan and radon plants are already in course of erection in suitable positions It would, however, be difficult to meet all the needs of cancer centres with emanation There are technical difficulties in the production and transport of the radioactive gas and in its use With the short-lived emanation, for instance, two implantations may be needed instead of one, and its biological effects alter with its falling intensity

---

[1] Barcroft, J., and Barron, D. H., *Ergebn Physiol.* 1939, 42, 107.

[2] Ehrhardt, K., *Münch med. Wschr* June 16, 1939, p. 915.

Finally, the national centres in vulnerable areas may arrange for actual radium treatment to be given in safe places In some cities whole hospitals have had to be evacuated, in others they are being used as casualty-clearing hospitals Where the hospital which is normally responsible for radium treatment has been evacuated it will be necessary to create a complete new radiotherapy unit either in the corresponding base hospital or in a safe area suitably placed to serve the needs of the population Where the main hospital has not been evacuated it should be possible to open a subsidiary hospital in a safe area, operated directly by the major centre The centre should not be moved if it can be avoided because the two forms of radiotherapy cannot be divorced and outpatient facilities for diagnosis and X ray treatment should be easily accessible to the population of a big town Patients should then be admitted and discharged through the existing main hospitals in populous areas, where the arrangements for outpatients would continue and the usual ancillary services would be at hand, but the staff of the radiotherapy units would carry out radium treatment in a subsidiary hospital elsewhere Privately owned radium, even where the quantity is small, must also be considered, so that the facilities of the subsidiary hospitals would have to be extended to private owners This last is the simplest method of the three, but it cannot lightly be undertaken by hospitals already anxious about their financial position

RETIREMENT OF A PUBLIC SERVANT

SIR FREDERICK MENZIES'S retirement was announced on Wednesday In its fifty-years history the London County Council has had only three chief medical officers Shirley Murphy, a reforming sanitarian, William Hamer, a scientific epidemiologist, and Frederick Menzies, a man of affairs, with great driving power and a knack of getting his own way in the large scale problems of medical administration When the opportunity of managing, controlling and bringing up to date the public hospitals of London knocked at his door, Menzies was ready for the task, he took over 76 hospitals from 26 different authorities, with a staff of 20,000, and welded them into one coherent and efficient whole Those who knew the poor-law hospitals of a few decades ago stand amazed when they revisit them and find what improvements have been effected But it must not be forgotten that Menzies has been not only a great hospital administrator but also a public-health pioneer It was his hand which did all the detailed work of the London tuberculosis and venereal diseases schemes He had however advantages not possessed by all a commanding presence a persuasive tongue, a facility for choosing the right assistants, personal friendships in high places, and an independence of outlook to which he was the more free to give full expression as he was not dependent on his official salary He had had long contact with hospital problems before the municipal hospitals of London came under his control, he was for many years a governor of the London Hospital, for some years after the last war he was director of hospital and medical services for the Joint Red Cross Committee, where he obtained the knowledge and understanding of the problems of the voluntary hospitals which were so useful to him when he came to administer the complex public-health services of the metropolis

He was much sought after as a member of government committees and gave valuable service on those dealing with midwives, venereal diseases, hospitals, and the scientific investigation of crime He has always been the nurses' friend and has upheld their right to adequate pay and good conditions of service, he is still a member of the Interdepartmental Committee and of the General Nursing Council He is, perhaps, at his best when receiving a deputation With great courtesy and urbanity he hears what they have to say, asks a few pertinent questions which go to the heart of the problem—the answers sometimes strengthening, sometimes destroying their case—and sends them away feeling they have had a fair hearing and met a just arbiter

This is a record as good as any man could wish But there is one circumstance that must inevitably sadden what would otherwise have been a welcome release The hospital service which should have been an abiding monument of Menzies's genius for constructive work is not at the moment the coherent whole that it was at the end of August It is no longer functioning as a self contained unit but is part of the London regional casualty hospital service The internal administration of its hospitals remains with the L C C , but the broad structure of the service which Menzies built up has been broken Let us hope that it will not be long before it is restored and will continue to develop on the foundations so well and truly laid It will be the hope of Sir Frederick's admirers—and they are legion—that his health will soon recover when he is released from the strain of office and that his great talents and knowledge will find scope in some advisory capacity for the benefit of the public health

ANNOTATIONS

PLASMA TRANSFUSION

THE *Star* of Oct. 2 gave a short account of a form of blood-transfusion in which preliminary typing is superfluous. This consists in giving plasma only. Reference was made to an announcement before the American Congress of Obstetricians and Gynecologists by Dr J Elliot and Dr. N Nessett, who are quoted as saying that plasma may be stored for a year or longer and can easily be given by partly trained staff, such as stretcher-bearers, if necessary in a front-line trench. As a matter of fact, however, plasma-transfusion is no new idea, and its advantages in the treatment of shock and burns have been clearly stated by Walther[1]. Hence it would be interesting to know if any steps are being taken to conserve the plasma from blood already obtained from volunteer donors in the present emergency. This blood is unlikely to keep longer than 4–6 weeks, after which it will have become unsuitable through hæmolysis of the red cells. Thousands of volunteers have already given their blood, and it is sad to think that the greater part of this supply may be destined to be poured down the sink. An excellent opportunity now presents itself to conserve the supernatant plasma of the older samples of stored blood and to test the claims of those who advocate the use of plasma rather than whole blood in the treatment of shock[2].

SULPHANILAMIDE IN SCARLET FEVER

THE aggression of scarlatinal streptococci against the human body is achieved by means of two distinct properties—toxin-production and invasiveness. Streptococcal toxin can be fairly readily neutralised by the use of antiscarlatinal serum, but streptococcal invasion cannot be influenced by serum, except perhaps indirectly. Hence the specific serum treatment of scarlet fever must be regarded as incomplete, and attempts have accordingly been made to supplement it by giving sulphanilamide. These attempts have not yet resulted in unanimity of opinion as to the value of the new remedy in this disease. It is clear that sulphanilamide cannot replace serum in treatment, being distinctly less effective in controlling those manifestations, due to a specific soluble exotoxin, such as rash and initial fever. But whether sulphanilamide should be employed as a routine measure remains a moot point. French,[3] thinks not. In her investigation, sulphanilamide or benzyl-sulphanilamide was given to alternate cases of scarlet fever in large doses and over a continuous period of about a month. Thus the average total dose for a child of five years of age or more was no less than 112 g. Antiscarlatinal serum was given, in addition, to cases thought to require it, irrespective of whether they were in the treated or control series. Although toxic manifestations due to the drug were common, no effect on the initial toxæmia of scarlet fever was noted, nor was there a statistically significant difference in the complication-rates between the two groups of cases. Only 1 death occurred in the combined series of 340 cases, so that no conclusion could be drawn from the fatality-rate.

French does not believe that low virulence of streptococcal strains could explain the failure of sulphanilamide in her experiment, for complication-rates generally were high. This conclusion may not be altogether justifiable, however, since individually severe complications were rather conspicuous by their absence. While admitting that the results of her investigation do not support routine administration of sulphanilamide in scarlet fever, few would at present feel justified in withholding the drug in cases where streptococcal virulence is evidently high—e g. on the appearance of a severe complication. Statistical proof of the value of the remedy in treating severe complications as they arise may take some time to obtain, but the experience of individual clinicians suggests that it may be of a high order. Banks,[4] for example, has described a case of primary streptococcal peritonitis in scarlet fever in which rapid sterilisation of the pus was achieved by oral and parenteral administration of M & B. 693, the patient ultimately making a good recovery.

PASTEUR

THE letters and addresses of Pasteur, which form the last volume of his collected works,[5] reveal the inner workings of his mind more than his actual experiments. He did not possess the quality popularly described as brilliance. He mistrusted mental facility and subtlety, and despised irony and scepticism. In teaching and administration, as well as in his scientific investigations, he admits that he owed his success to that infinite capacity for taking pains which has sometimes been described as the chief attribute of genius. His lectures and addresses are a constant pæan in praise of will, effort and enthusiasm, the driving forces of his life. He warned his students against considering only the practical value of scientific observations, aptly quoting Franklin—"what is the use of a new born babe?" "Theoretical knowledge" he said, "can foster the spirit of invention, but you must submit every new idea to strict experimental control . . The critical faculty alone cannot produce ideas but without it no scientific work can be elaborated." Teaching he considered essential to the scientific worker, "as it constantly obliged him to review the relationship of his own particular branch to other sciences."

He attributed to Lavoisier a greater influence on modern chemistry than either of his contemporaries Scheele or Priestley, since Lavoisier methodically planned his experiments. "In the field of observation," Pasteur was wont to say, "luck will only favour those minds which are duly prepared and ready." Side by side with the shy investigator humbly deprecating his work and modestly admitting when acknowledging international honours, "le sentiment de mon insuffisance," stalked a vastly different personality, an aggressive fighter impatient of opposition. His friends warned him against the implacable rigour of his dialectic, trying at the same time to restrain his ardour and to allay his fears that the cause of science might be imperilled through the virulent attacks of obscure tract-writers. Not content with the already large number of his adversaries, he created new ones. When his work on fermentation led him to investigate the nature of infectious diseases (incidentally proving the correctness of Robert Boyle's assertion of two centuries earlier that the study of fermentation might throw more light on morbid processes), he encountered bitter opposition. "Do you know why I shall fight you to a finish," he wrote to Bastian in 1877, "it is because you support the view, which in my opinion is fatal to medicine, that all disease arises spontaneously within man." The physicians of that period hardly relished the incursions of an experimental chemist into clinical science, even Trousseau and Pidoux in their "Treatise on Therapeutics" of 1855 alluding to "the chemists' ambition to explain phenomena which do not even belong to the realm of chemical science."

---

[1] Walther, W. W., *Lancet*, 1937, 1, 6

[2] See *Lancet*, Sept 16, 1939, p 657

[3] French, J O, *J. Hyg*, *Camb* September, 1939, p 581

[4] Banks, H S *Lancet*, 1939 1, 983

[5] Oeuvres de Pasteur. Collected by Prof Pasteur Vallér Radot. Paris Masson et Cie Vol 7. 1939 Pp 666 Frs 200

For sheer piquancy, the juxtaposition of two such different types as those of Pasteur and Renan is perhaps unsurpassed. In 1882 Pasteur had been elected to the seat of the late Littré (of dictionary fame) at the French Academy. On these occasions the élite of Paris society foregathered to hear the panegyric of the departed immortal by the newly elected one. Pasteur did not hesitate to criticize his late friend Littré for following the positivism of Auguste Comte. "This doctrine," said Pasteur, "ignores the most positive of all notions, that of the infinite. While not denying the existence of God and the immortality of the soul, it dismisses any thought about these because science is unable to prove their existence." Ernest Renan in his reply trod more cautiously. With delightful tact and finesse, the renowned religious critic bade Pasteur welcome to this assembly. "You may appreciate meeting here representatives of diverse schools of thought, playwrights, novelists, poets, historians and philosophers. None of us, you may rest assured, Monsieur, will ever be able to shake your unalterable faith in your experiments. ... Perhaps some day you will admit there was some good in the prudent abstentions of Littré ... you may learn from us, that there are such things as doubts and subtle shades of opinion. Perhaps you will allow us to come to you with our doubts and with our hesitations, giving us in return, your certainty, your assurance and above all, Monsieur, your inestimable genius and the glory of your discoveries." Pasteur quoted from Bossuet's De la connaissance de Dieu et de soi-même: "le plus grand dérèglement de l'esprit est de croire les choses, parce que l'on veut qu'elles soient."

THE FEEDING OF INFANTS

ACCORDING to a study made by Dr Margaret Robinson, assistant medical officer of health for the city of Liverpool, there has been, contrary to general opinion, no decline in the last twenty years in the incidence of breast feeding in that town, but some shortening in the period of lactation.[1] This conclusion she bases upon the case records of the Infant Welfare Centres in Liverpool which she investigated for every fourth year from 1918 to 1937. In the former year, to quote some of her results, 82 per cent of the 204 infants for whom records were available were on the breast during their first week of life; the corresponding figure for 1937, based upon 439 records, was as high as 93 per cent. An original attempt to breast feed is, therefore, fairly general in these records. During the fifth week, however, only 70 per cent of those born in 1918 were still on the breast and 64 per cent of those born in 1937. In the third month of life the comparative proportions were only 52 and 48, in the sixth month 33 and 29, and for over nine months 11 and 4. There is clearly but little difference between the figures for the two periods except for the very slightly faster rate of weaning in 1937. On the other hand it will be seen that at either period approximately one third of these infants had ceased to be breast fed at the end of the first month, about half by the end of three months, and only one third were breast fed for as long as six months, figures which can hardly be regarded as satisfactory.

It is difficult, of course, to determine how far these figures derived from mothers attending clinics are representative of the general population of mothers at the different dates. Dr Robinson finds that they do not differ in 1937 from similar figures obtained from mothers visited in their own homes by the health visitor, and concludes that it is inaccurate to assert that clinics encourage an increase in bottle feeding. She was unable to apply any check to the figures relating to 1918. The only alternative approach to the question would seem to lie in the direct questioning of random groups of mothers who had given birth at different times, but the resulting figures would depend upon their memories which might well be at fault, especially with regard to the duration of breast feeding. This mode of inquiry applied in the present investigation to a hundred consecutive new cases (excluding primiparæ) who had attended the clinic since October 1938, showed that among daughters whose own mothers had breast fed, three quarters of themselves had done likewise; among daughters whose mothers had not breast fed, the corresponding proportion was just over one half. Dr Robinson is inclined to attribute this difference to parental influence rather than to heredity, and from a comparison of those living in apartments with those living in houses she finds a faster rate of weaning amongst the former, a feature which may be likewise due to the influence of other residents in the apartments.

The relatively rapid rate of weaning shown in these figures emphasises the importance of determining the requirements of the artificially fed child. Continuing her carefully controlled studies in this field Dr Helen Mackay has extended her observations[2] on the health and development of infants fed on roller process dried milk with and without a supplement of vitamin A. Her previous observations[3] suggested a higher incidence of minor infective skin lesions in the infants not receiving the extra vitamin A supplement, and taking the results reported by other workers into account, Dr Mackay tentatively put forward the view that a diminished resistance to such infections might well be one of the earliest results of vitamin A deficiency in children. In her present investigation, which lasted nearly three years and was carried out at the Queen's Hospital for Children, London, the progress of the two groups of babies, with and without the supplement, was, however, closely similar in all the points examined. Both groups showed approximately the same rate of gain in weight and the great majority of babies made good progress. The general morbidity rate did not differ between them and showed no relative lack of resistance in the control group to illnesses of the respiratory tract, of the intestinal tract, or to specific fevers. Careful notes were taken of all lesions affecting the skin, mouth, and eyes, but these again were found to be virtually identical in their incidence on the two groups.

It seems, therefore, that the roller process full cream dried milk used in this investigation supplied sufficient vitamin A for the child's needs up to six months old and that the diet given at subsequent ages was equally satisfactory in this respect. It may be that the milk used in the earlier inquiry, which gave the positive results referred to previously, had a lower vitamin-A content (and estimates of such contents are difficult to make with any pretence to accuracy). Dr Mackay's conclusions are that the present results should not be taken as definitely refuting her previous findings and that, pending other evidence, it would still be advisable to give artificially fed babies a supplement providing extra vitamin A.

---

[1] Arch Dis Child, September 1939, p 259

[2] Ibid, September 1939, p 243

[3] Ibid, 1934, p 133

AIR-EMBOLISM VIA THE VAGINA

AIR-EMBOLISM is a recognised complication in obstetrics, albeit a rare one. Redfield and Bodine,[1] in reporting two examples, assert that there is a slight but distinct risk in the adoption of positions that allow air to enter the vagina in a recently delivered woman.

In their first case a woman of 33 was delivered normally of her second child, and got up on the tenth day. She was ordered to do a knee-chest exercise daily On the eleventh postpartum day she performed the exercise and five minutes later had a convulsion, which the doctor who saw her diagnosed as eclamptic Twelve minutes after the onset of the convulsion she died. Autopsy disclosed frothy blood in both chambers of the right side of the heart, and the lungs contained numerous large blebs of air. The uterus was filled with clot; some of the sinuses were seen on microscopical section to contain blood, while others were empty. A frothy mixture of blood and air was found in the large uterine veins, in the iliac veins and in the inferior vena cava.

The second patient was admitted to hospital with mild antepartum hæmorrhage and delivered of her seventh child by version and extraction. On the seventh day she did the knee-chest exercise for 3 minutes. On the eighth day she did the exercise for 5 minutes, then complained of feeling faint, went into convulsions and died. Postmortem appearances were similar to those found in the first patient, but more pronounced; all veins except those of the portal system were distended with air and frothy blood, and in the right heart and pulmonary artery the air was under considerable pressure, escaping with an audible hiss when the artery was incised.

The mechanism of air-embolism occurring in these circumstances is thought by Redfield and Bodine to be as follows. In the knee-chest position the labia are separated and air flows into the vagina or even into the uterus, when the posture is relaxed and the labia come together air is forced with a bellows action into the open uterine sinuses Their conclusion is that knee-chest exercises should be avoided at least during the early weeks of the puerperium.

CARBON-MONOXIDE OR FOOD-POISONING?

As a result of researches conducted at the Paris prefecture of police, Professor Tanon and Dr. Neveu[2] have reached the conclusion that certain stormy incidents hitherto regarded as examples of acute food-poisoning must really be interpreted as the outcome of CO-poisoning. The type of case is that of the person who dines well either at home or at a restaurant. After plentiful libations and conversational prodigies he retires to rest in an ill-ventilated room heated by a stove In a temporarily plethoric state and confronted by a prolonged and laborious feat of digestion, he is unable to obtain all the oxygen he needs for his processes of combustion, breathing as he does a mixture of air in which there is a goodly proportion of carbon monoxide. Ordinarily the poisoning would not be noticed, or its slight manifestations would be attributed to some other cause. But the alcohol circulating in the blood helps to fix the CO in it, and hypo-oxygenation and bulbar intoxication combine to produce a reaction indistinguishable from that of gastro-enteritis due to other causes Among the incidents recorded in this note is one concerning a family which, on the occasion of a baptism, took a large meal at a restaurant During the following night the father, mother and one of the three children suffered from headache, fever, vomiting and diarrhœa The doctor who was summoned diagnosed food-poisoning. The father was ill for a couple of days, and the mother and her child for three or four days, after which all was well again. A formal complaint having been lodged against the owner of the restaurant, an investigation was set on foot The stools of the diners and what was left of the food of which they had partaken were examined No bacteriological or serological evidence in support of an acute gastro-intestinal infection could be obtained, and it was noteworthy that certain other persons who had dined at the same restaurant on the same occasion and on the same food had remained perfectly well. Copper poisoning could also be excluded But the home to which the family had retired after dining out proved to be most ineffectively ventilated, and it was found that the air of the room heated by a stove contained 0 2 per cent carbon monoxide. After giving an account of similar cases the authors of this note suggest that in the past many a case of CO-poisoning has been overlooked, the blame for a gastro-intestinal crisis having been wrongly put on some article of food

PARATHYROID GLANDS AND RENAL DISEASE

PERSISTENT renal failure leads to hypertrophy of the parathyroids and a mild osteitis fibrosa Conversely, in some cases of the osteitis fibrosa of von Recklinghausen with a parathyroid tumour the first symptoms may be caused by renal calculi or by lesions resembling those of chronic nephritis We say "resembling" because a true toxic nephritis or Bright's disease has never been demonstrated histologically, though the symptoms may be those of chronic nephritis, the kidneys usually show deposits of calcium in the tubules and interstitial tissue and atrophy of the glomeruli and tubules caused by blockage of the tubules by calcium, together with some fibrosis and lymphocytic infiltration of the interstitial tissue—probably the result of atrophy There is albuminuria, and there may be renal inefficiency Chown[1] and his colleagues now report that in young rats they have produced this type of renal lesion, associated with albuminuria, by the injection of parathyroid hormone. They found that tubular dilatation, caused by incomplete obstruction of the tubules by calcium, sometimes led to the formation of numerous small cysts visible to the naked eye They also produced, but less frequently, similar lesions of the kidney by treating rats with large doses of non-toxic vitamin D They regard their experimental "nephritis" as identical with the phosphate nephritis of Duguid[2] and say that the deposition of calcium in the kidneys is not simply due to the increased urinary excretion of calcium They suggest that the degree of dehydration may largely account for the variation of the lesions, which are not proportionate to the amount of parathyroid hormone given It is perhaps unfortunate that the term "nephritis" is used for the conditions observed, for they do not resemble those of true toxic nephritis or Bright's disease They are more like those of ischæmic nephritis, but due to tubular rather than vascular occlusion The same workers also describe a less common and striking change found usually only after heavy doses of parathyroid hormone—namely, necrosis of the tubular epithelium with or without associated deposits of calcium This has also been seen in acute hyperparathyroidism in man and dog and may play a part in the causation of the renal atrophy and the symptoms of renal failure

---

[1] Redfield, R L, and Bodine, H. R, *J. Amer. med Ass.* Aug 19, 1939, p. 671

[2] Tanon, L, and Neveu, R, *Mouvem Sanit* 1939, No 180, p 209

[1] Chown, B, Lee, M, Teal, J, and Currie, R, *J Path Bact* September, 1939, p 273

[2] Duguid, J, *Proc R Soc Med* 1933-34, 27, 792.

ABSORPTION AND EXCRETION OF IRON

ALTHOUGH iron has long been one of the great standbys of physicians, the physiology of the metal is not a subject on which physiologists and biochemists have had much to congratulate themselves. Despite pioneer work in the last century the whole question of the absorption, transportation and excretion of iron remained obscure until a year or two ago An important advance was made when Brock [1] and Fowler and Barer [2] discovered that quite large amounts of iron were absorbed from the intestine when large doses were given by mouth The amounts absorbed by anæmic persons, for instance, were far in excess of those required for the restoration of a normal hæmoglobin Writing in 1937 McCance and Widdowson [3] pointed out that "in spite of the confusion about the amount and state of iron in the plasma, it is natural to suppose that the plasma is the medium for the transport of iron" They also pointed out that *the evidence at that time suggested* that iron is not excreted freely, if at all, by human beings, and that therefore the amount in the body must be regulated by controlled absorption

Since that date McCance and Widdowson [4] have themselves demonstrated in various ways the failure of the body to excrete iron, and Hahn et al,[5] using radio-active iron, have produced direct evidence that the "need of the body for iron in some manner determines the absorption of this element" These are revolutionary notions in physiology, but they do explain much that has been up till now obscure Since 1937 Moore and his assistants have been investigating the metabolism of iron by means of serum iron determinations, and have shown that the various anæmias may have characteristic levels of serum iron They find [6] that the rise of serum iron is proportional to the dose given by mouth, that gastric acidity does not influence the absorption curve of ionised ferrous salts, and that ferrous salts give higher curves than ferric salts, but if vitamin C is prescribed with the ferric salts the serum iron response is as good as if a ferrous salt had been taken They also find that patients with an iron deficiency anæmia tend to absorb iron more readily at the beginning than later on in therapy, suggesting once more that absorption is controlled

It is too soon yet to formulate anything like a complete theory of iron metabolism, but it is obvious that within the last three years physiologists have been doing their best to remove a stain from their escutcheon

---

1 Brock J F *Brit med J* 1937 1 314 Brock and Hunter, D, *Quart J Med* 1937 6 5

2 Fowler W M and Barer A P *Arch intern Med* 1937 9 561

3 McCance R A, and Widdowson E M *Lancet* 1937 2 680

4 McCance and Widdowson *J Physiol* 1938 94 148

5 Hahn P F Bale W F Lawrence E O and Whipple G H *J exper Med* 1939, 69 739

6 Moore C V Arrowsmith W R Quilligan J J, and Read J T *J clin Invest* 1937, 16 613 Moore Minnich V and Welch J *Ibid* September 1939 p 543

STUDENTS GROUSE

IN our correspondence columns a medical student draws attention to the financial hardship that some of his colleagues are facing owing to the combination of reduced parental incomes and the increased expenses of scattered teaching The extra cost will fall heaviest on students in their preclinical years who normally live cheaply at home near their medical school, but now that their school has moved must pay for lodgings The more senior students who are attached to emergency hospitals as dressers or clerks get no pay, but they receive free board and lodging either in their hospital or in billets provided by the Ministry of Health This should more than offset any travelling expenses that they have to meet Both preclinical and clinical students have still to pay their school fees, for the schools and the teachers must live University authorities are considering how help can be given to those who are most seriously hit, and it is hoped that no one will give up his training because of lack of funds Those students who complain that they are moved on too often, or are kept too long in one place, should realise that how long any clinical student stays at one hospital is for the dean of his school to decide, and should therefore argue their case with their dean and not with the Ministry's hospital organisers They might also remember that the scheme for clinical teaching was only designed to cover the first three months of the war, and that the arrangements will be reviewed by all the schools in the next few weeks

ASPIRIN HÆMATEMESIS

THERE have been several reports on the harm that can be done by aspirin (acetyl salicylic acid) used in excess Sir Arthur Hurst and Dr Lintott [1] now relate a case of hæmatemesis which they ascribe to this drug, taken in large doses over some twenty years for the relief of migrainous headaches The patient suffered from gastric bleedings and melæna with resulting anæmia, but there was no radioscopic evidence of ulcer The suspicion that aspirin might be the cause of the disability was confirmed when gastroscopic examinations were made some of these are illustrated in Hurst and Lintott's report and show fragments of aspirin tablets at the centre of congested and even hæmorrhagic areas of mucous membrane It has long been known that aspirin is capable of causing digestive disturbance and melæna, and its irritant properties have been demonstrated with the gastroscope by Douthwaite and Lintott [2] who recommended the use of calcium acetyl salicylate rather than the usual preparation It is thought that in the present case the patient was exceptionally sensitive to the drug Since avoiding it he has had no further symptoms

WE have already indicated that owing to the strain imposed on the medical services of the country by the war the utmost economy is necessary in the prescription of drugs At the invitation of the Ministry of Health the Medical Research Council has formed a therapeutic requirements subcommittee to advise the Ministry and the medical and pharmaceutical professions on methods relating to economy in the use of drugs Communications should be addressed to Dr C H Hampshire, 41, Hallam Street, London W 1

LORD HORDER has accepted the appointment of honorary consulting physician to the Ministry of Pensions

---

1 Hurst A, and Lintott, G A M *Guy's Hosp Rep* 1939 89, 173

2 Douthwaite A H, and Lintott *Lancet* 1938 2 1222

THE NEW ENDOCRINOLOGY

A series of articles by Prof. E C Dodds, F.R C.P , *director of the Courtauld institute of biochemistry at the Middlesex Hospital, based on lectures delivered at the British Postgraduate Medical School*

II—CHEMISTRY OF THE STEROLS

Before the chemical configuration of the sex hormones can be appreciated it will be necessary to discuss in some detail advances in the chemistry of the sterols Unfortunately the terminology of this subject is not at all easily intelligible, and the medical reader who wishes to unravel the complexities is unlikely to find in any textbook on chemistry a simple account of the system used The following is an attempt to describe very briefly the current methods of nomenclature

The sterols include such bodies as cholesterol, and have always been of interest to the chemist and the biochemist They are known to contain hydrogen, carbon and oxygen, to be soluble in organic solvents, and to share some of the other characteristics of fats Quite early, however, it became apparent that they are much more complex than simple fats The present view of their structure is mainly due to the work of the school of organic chemistry at Gottingen under Professor Windaus, but very important contributions have also been made by the English school, more particularly by O Rosenheim and H King. The present view is that sterols such as cholesterol, the phytosterols and the zymosterols all have a condensed carbon-ring structure in which the rings are arranged in what is known as the cyclopentenophenanthrene system This is indicated in fig 1

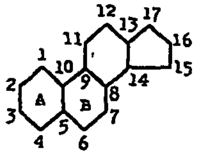


Fig 1—Scheme for cyclopentenophenanthrene system

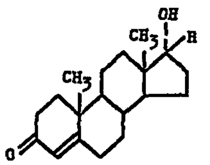


Fig 2—Testosterone

Carbon atoms are numbered in accordance with accepted international usage The three great characteristics of the sterols are the hydroxyl group at carbon atom 3, the angle-methyl group at carbon atoms 10 and 13, and a long side-chain attached to carbon atom 17 Various double bonds may be present in the system, as for example between carbon atoms 4 and 5 The sex hormones consist essentially of the same cyclopentenophenanthrene structure, with the side-chain at the 17 carbon atom removed It is possible to have alcohol groups or ketone groups at the 17 carbon atom. It is obvious from the point of view of nomenclature that some system of notation must be devised which indicates the situation of the groups and double bonds This is done by putting the appropriate number of the carbon atom in front of the letters "ol" for an alcohol group or "on" for a ketone group A double bond is indicated by altering the name of the parent hydrocarbon, and introducing "en" in place of "an" In some instances the letter Δ is introduced with the numbers of the carbon atoms between which the double bond is situated Thus testosterone, for which the formula is given in fig 2, contains a double bond between carbon atoms 4 and 5, a hydroxyl group at the 17 carbon atom, and a ketone group at the 3 carbon atom, and being a derivative of the hydrocarbon androstane is therefore in this nomenclature Δ^4-androsten-17 ol 3-one

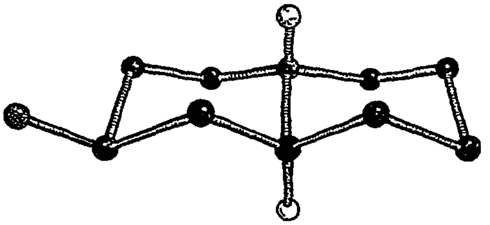


Fig 3—Allo-β type

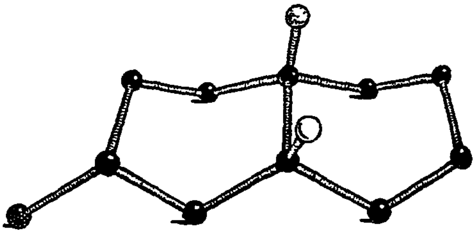


Fig 5—Normal type

There are further complications that are more difficult to portray than the above The sterols consist in the main of condensed carbon rings which are saturated The rings of the cyclopentenophenanthrene are also lettered according to the scheme shown in fig 1 Thus rings A and B are completely saturated, and it is possible to have two *forms of the rings themselves* The differences concern what one may call the points of the rings—i e, carbon atoms 1 and 4 and 9 and 6 These "points" cannot be on the same plane, since the four valencies of the carbon atom correspond to the points of a regular tetrahedron Therefore the above-mentioned points may either be above the plane of the paper or below

It is possible to have two arrangements In one of them one set of points is above the plane of the paper and one below In this case the rings will have the appearance of a chair, as shown in the perspective drawings (figs 3 and 4) this is known as the trans decalin arrangement, or more commonly as the allo- variety In the other arrangement the points of the rings are both on the same side of the plane of the paper The appearance then suggests that of two beds (fig 5): this is known as *the cis-decalin or normal type*

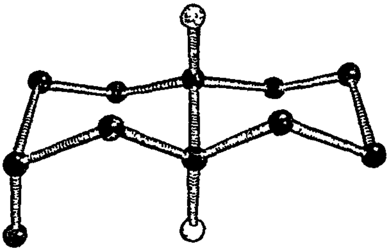


Fig. 4—Epi allo type

There are still further complications owing to the position of the angle methyl group in relationship to the points of the rings, the hydroxyl group at 3 and the hydrogen atom at 5 Two varieties of allo- forms can exist, and these are shown in the two perspective drawings (figs 3 and 4) The first is the β variety, in which it can be seen that the hydroxyl group is in the same plane as the methyl group, whilst the hydrogen is in the outside plane to both all natural sterols are derivatives of this allo β form The second form, also illustrated, is known as the epi allo This differs from the former in that the hydroxyl group, instead of being in the same plane as the angle methyl group, is on the opposite side and therefore in the same plane as the hydrogen atom group at 5 It is interesting to note that all epi compounds are not precipitated by digitonin, whilst all the β compounds are precipitated by digitonin

It is to be hoped that, with these general instructions, the nomenclature of the sterols will be followed The complexity of the rings is extremely great, and we have only considered here rings A and D Stereo isomerism can occur in the other rings, with the result that it is possible to postulate 32 isomers of œstrone The extreme difficulty facing the organic chemist can therefore be seen, since it will be possible to synthesise a molecule having the correct formula, yet being one of the 31 unnatural isomers

The only other stereo isomeric problem that need concern us here is that taking place at carbon atom 17 When the alcohol group is attached to the 17 carbon atom it is possible to have two isomerides, one in which the hydroxyl group is in the same plane as the angle methyl group on the 13 carbon atom (in which case the compound is said to be cis), and the second in which it is in the opposite plane (in which case it is said to be trans)

SPECIAL ARTICLES

MEDICINE AND THE LAW

Operation at Public-health Hospital

THERE was a valuable decision last week (in Nelson v Cookson and another) on the liability of medical officers in hospitals maintained under the statutory powers of local authorities The facts were not established because the preliminary legal point disposed of the plaintiff s claim The pleadings had alleged that a girl was admitted to the West Middlesex Hospital in March, 1937, to undergo an operation for the removal of her tonsils and adenoids One of the two defendants, an assistant medical officer at the hospital, performed the operation, the second defendant acted as his anæsthetist The girl's case was that her left cheek was burnt by reason of the defendant's negligence in placing a gag on her face without taking precautions to see that its temperature was correct She claimed damages for the pain and disfigurement which was attributed to the burning

The forensic strategy of the case was interesting No claim was made against the county council responsible for the conduct of the hospital It was conceded (on the principle of Hillyer v St Bartholomew's Hospital) that the local authority would not be liable for the acts of its medical staff unless it had knowingly appointed unskilled practitioners. There was another obvious defence open to the local authority —namely, the fact that the action had not been begun within six months of the alleged negligence The plaintiff's claim was directed not at the county council, but at the medical officers They too were entitled to plead immunity on the ground that the claim was time barred This was the issue in the case, though the defendants had other strings to their bow Both of them denied negligence The first defendant also said that it was not his duty as operating surgeon to insert the gag, this would be the duty of the second defendant, if the second defendant was guilty of negligence in this respect (which was denied), he was not acting as the servant or agent of the first defendant The two defendants were separately represented

The preliminary issue decided last week was whether section one of the Public Authorities Protection Act 1893, applied to the two medical officers "Any action" so runs the section, "against any person for any act done in pursuance or execution or intended execution of any Act of Parliament or of any public duty or authority or in respect of any alleged neglect or default in the execution of any such Act, duty or authority shall not lie unless it is commenced within six months next after the act neglect or default complained of" There is a well-known decision (Freeborn v Leeming) which establishes that a medical officer at a local authority's hospital is entitled to the same protection under the section as the local authority itself To circumvent the Freeborn case, it was argued on behalf of the plaintiff that the defendant doctors were not mere servants or agents directed to do a particular thing in a particular way but independent persons who acted according to their own skill and discretion—persons, in fact, who were carrying out a contractual duty with the county council The significance of this argument lay in the knowledge that in 1905 (in T Tilling & Co v Dick Kerr & Co) it was held that an independent contractor, working for his own profit, was not protected by the 1893 Act when doing something which a public authority had power to do The facts of that case concerned some raised rails which caused an accident in the course of reconstructing tram-lines for the use of electric trams The defendant company was held to be an independent contractor, not a servant or agent of the public body, and therefore was deprived of the protection of the Act In the case last week Mr Justice Atkinson said he was bound by, and satisfied with, the existing legal decisions which have brought medical officers inside the cover of the statute It had been contended that as the county council was not responsible in law for the negligence of its medical officer, there must be a right to sue the medical officer himself But the medical officer, if he were to be sued, must be sued within six months The omission to bring the action in time was fatal

Any other decision would have seemed surprising in view of the facts in the Freeborn case in 1926 There the plaintiff, injured by a motor car, was taken to a workhouse infirmary and treated by the medical officer In the opinion of the county court judge the medical officer was negligent in his diagnosis and treatment The patient remained in the infirmary till October 15, 1923 then, being dissatisfied, he left and consulted other medical advisers They advised an operation which resulted in the permanent shortening of one leg The plaintiff said this was due to the original negligence He did not issue his writ till April 25, 1924—six months and ten days after he left the care of the defendant doctor Those ten days made all the difference The six month period must be reckoned from the date of the negligence If the patient ceased to be in the charge of the defendant doctor on October 15, the period must run from that date It was immaterial, said Lord Justice Scrutton that some damage occurred after that date which was attributable to the alleged negligence The claim was barred. It may be worth while to add that the Freeborn case was a strong one because the fact of negligence had been judicially established and on this point the Court of Appeal would not overrule the county-court judge. These proceedings which depend upon the application of the Public Authorities Act ignore the merits As Mr. Justice Salter observed in Freeborn *v.* Leeming, the statute is prepared to assume the misconduct of public officers, it protects them even when they have been guilty of misconduct

Next July Lord Maugham's new Limitation Act, 1939, based upon the review of earlier and somewhat inconsistent statutes by the Law Revision Committee, will come into force It enlarges the six-month period of limitation of actions against public authorities and their servants into a period of twelve months The neglects and defaults which those authorities and their staffs commit are manifold. The neglects and defaults of physicians or surgeons constitute a minute proportion of the total. It seems a little hard on the hospital doctor that the period of his exposure to attack from plaintiffs should have been doubled and that his statutory protection should thus have been cut down So tender-hearted is Parliament towards a prospective plaintiff

HEALTH OF THE REGULAR ARMY

A LITTLE late in the day perhaps the report on the health of the Army for 1937[1] has just appeared. Apart from its date of issue, it is a model blue-book It is completely free from unnecessary verbiage, undigested statistics and official obliquities In its description of the day-to-day difficulties of army medicine and hygiene, it succeeds in holding the interest Major-General W P. Macarthur says in his introductory letter that the rate of admissions to hospital has decreased by 1 41 per cent compared with the previous year, while the death ratio of 1 97 per 1000 and the ratio of 6 80 per 1000 for invalids discharged are the lowest ever recorded since the Great War. Among officers the commonest cause of admission to hospitals was inflammation of the areolar tissue (boils, carbuncles and so on), while among the men, venereal diseases still head the list with influenza second In the past twenty years there has been a steady decline in almost all diseases causing invaliding from the army, with the solitary exception of tubercle, which now heads the list, second, strangely enough, comes schizophrenia with hysteria third, both of which have increased in the year under review. Rheumatic fever is commendably low on the list, a striking testimony to the environmental hygiene of the army, when one recalls how common this disease is among the metropolitan police

There was a rise in the incidence of venereal disease in the year under review In the United Kingdom Commands, easily the most heavily infected was that of Northern Ireland (24 7 per 1000) with Scotland second (19·0 per 1000) The lowest was the Aldershot command (10 2 per 1000) Of the foreign commands, China headed the list with 155 1 per 1000, Jamaica was second with 103 9 per 1000, while India was only 39 9 per 1000 A prophylactic cream of 25 per cent calomel with Dettol in a soap basis was tried out extensively in the China command, but was found to be no more effective than similar preparations, and was stopped because of complaints that it was too irritating Great success attended the use of the sulphanilamides in therapy, the dermatological specialist at Aldershot reporting that the whole atmosphere of the gonorrhœa wards has changed, and patients, instead of being dull and troublesome, are now cheerful and anxious to get on with their treatment. The work of the army doctors for soldiers' wives and children continues Among the wives, the commonest cause of admission to hospital was abortion (14 2 per 1000), with malaria (6 1 per 1000) second. Among the children, big tonsils (29 3 per 1000) headed the list Among 2959 labours conducted in military families' hospitals, there were only 3 maternal deaths.

Army hygiene has stood up well to such special tests as the cholera epidemic in China associated with the Japanese invasion. In Hong-Kong, the civilian population has 440 cases in its peak week, yet there were no military cases In Shanghai, 5 military cases occurred all due to neglect of orders forbidding the consumption of unauthorised ice-cream—the biters bit At home, the increasing use of piped water in camps has led to difficulties in disposing of the excessive amount of sullage water, and a Hattersley's system has been tried out. Scabies has increased in all areas at home in the past two years, though no increase has occurred abroad. In spite of this, pyjamas for all soldiers have not yet been authorised, though hygienic reports have urged this repeatedly The army milk scheme in India scored its greatest triumph during the Waziristan operations, when, in spite of a temperature of 122° F, fresh milk and fresh butter in special iced containers were delivered even to places cut off by enemy action for ordinary military traffic!

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

SIR JAMES LEISHMAN

THE career of Sir James Leishman, who died suddenly in Edinburgh on Sept. 27, bears witness to his strength of character Starting as a postman, he founded a successful typewriting and shorthand business, entered the Edinburgh town council and became city treasurer While he held this appointment Mr. Lloyd George's campaign for national health insurance was reaching its climax Sir James, always a vehement defender of the interests of the working man, was vigorous in his support of the scheme, and he played no inconsiderable part in turning the scale in its favour. At the same time he fought strenuously for the separation of Scotland from England and Wales in the administration of national health insurance, and indeed he was ever a strong supporter of Scottish self-government With his appointment as first chairman of the Scottish National Health Insurance Commission, which possibly prevented his becoming Lord Provost of Edinburgh, there began a period of arduous toil, for on his shoulders fell the burden of the creation of the whole complex machine. He was knighted for these services in 1914 In 1928 he became the last chairman of the Local Government Board for Scotland, the forerunner of the Department of Health. When the scheme for a Highlands and Islands medical service was in preparation he sought out for himself the needs and special problems of the crofter and fisher populations and their doctors, and as a result of his efforts and his documented evidence before the late Lord Forteviot's commission of inquiry the proposed grant for the service is said to have been doubled It was his invariable practice, before discussing a subject in public, to acquaint himself thoroughly with all the available information about it Hence his convictions were so well supported by facts that his opponents had a difficult task His brusque and dogmatic manner coupled with a disconcerting habit of often being right antagonised many, but none ever doubted his sincerity of purpose His soft heart displayed itself in many ways He was intensely interested in education, both child and adult and he did much to promote sports in public parks in Edinburgh At his house facing the Meadows he kept a stock of cricket bats and balls to lend to poor boys

---

[1] Published by H M Stationery Office London Pp 145. 2s 6d

PAYMENT TO HOSPITALS FOR WAR CASUALTIES

The Department of Health for Scotland announce that the Government will pay voluntary hospitals what they spend in maintaining and treating war casualties Casualties include, in addition to persons injured by enemy action, patients who have been transferred from another hospital under the emergency hospital scheme, and unaccompanied evacuated school-children who need hospital treatment Payments will be based on the ordinary running costs of the individual hospitals in peace-time, but if costs are actually greater the Department of Health will be sympathetic If any hospital is so financially embarrassed that it can no longer provide the casualty service required of it, temporary financial accommodation may have to be made by the Government For casualties treated in an outpatient department other than one used as a first-aid post the interim payment will be 2*s* for each attendance Pending information as to the actual running cost per bed of individual hospitals in the scheme, an interim payment of 4*s* per night will be made for each unoccupied casualty bed, and 6*s* for each occupied casualty bed, these payments may be adjusted later Voluntary hospitals are to make returns showing the bed states in order to qualify for the interim payments

CHAIRMAN OF GLASGOW ROYAL INFIRMARY

Sir James Macfarlane, LL.D, D.L, has resigned from the chairmanship of the board of managers of Glasgow Royal Infirmary He has now completed 40 years as a manager and over 25 years as chairman During this time the total income of the infirmary has almost quadrupled For the last 15 years Sir James has been specially interested in the establishment of the Canniesburn Auxiliary Hospital which he first proposed in 1921 This hospital was opened nearly 2 years ago The site on which it was erected was presented to the infirmary by Sir James and his brother He is succeeded in the chairmanship by Mr Charles Glen

A R P. IN EDINBURGH ROYAL INFIRMARY

At the Edinburgh Royal Infirmary 60,000 sand bags have been placed in position and most windows have been protected by boarding and wire netting It has been necessary to alter the roofs to make them more fire resisting The blacking-out of over 10,000 windows and innumerable sky lights has been a difficult task A large staff has been busy with paper, cloth and paint Many of the windows have also been sprayed with a rubber solution to minimise the dangers of splintering No longer do the patients have a pleasant view over the Meadows, and they must be content merely with translucent panes

NORWAY

(FROM OUR OWN CORRESPONDENT)

GETTING UP SOON AFTER LAPAROTOMY

Dr N Backer Grondahl, who is in charge of the municipal hospital in Bergen, has found the demand upon his surgical wards an important factor in deciding when to let patients get up after operation It is a pity that economics should influence surgical decisions, but there it is Since 1937, Dr Backer-Gröndahl has encouraged his patients who have had abdominal operations to get up as soon as they liked, and he has been surprised at the improvement in their self-confidence, and the disappearance of difficulties with micturition, the action of the bowels and so on Most of his patients now get up on the second or third day Most of the 435 laparotomies, which he has studied with special reference to the interval between operation and getting out of bed, were on the appendix and stomach and 355 were done under spinal anæsthesia About one in ten of the patients had to return to bed for a day or more, the most common cause being headache, which was, by the way, just as frequent among the patients who kept to their beds for many days Getting up soon did not affect the incidence of thrombosis and embolism one way or the other In the past, Dr Backer Gröndahl says, his patients have been liable to be overwhelmed by the atmosphere of tragedy surrounding their operation, whereas now they take it more lightheartedly, if they do not literally take up their bed and walk

PNEUMONIA FROM MANGANESE IN SMOKE

Dr Dagfinn Elstad has spent three or four years trying to solve the riddle of endemic pneumonia in an isolated community on the west coast of Norway Only a generation ago, the community of Sauda, with its 1500–2000 souls, was rural and enjoyed a climate noted for its salubrious qualities Then, in 1923 thanks to a rich supply of water power, Sauda found itself industrialised and its population trebled, with an imposing output of alloys of iron and manganese These alloys were obtained by electrical processes in furnaces which yielded much manganese containing smoke The death rate from pneumonia soon went up by leaps and bounds An inquiry was carried out in 1928 by the late Prof Axel Holst, who was not satisfied that there was any causal relationship between the smoke and the pneumonia His son, Dr P M Holst advocated in 1929 the prophylactic inoculation of the community against pneumonia, but the mass inoculations conducted every autumn since then have failed to check the endemic Actually, the total death rate in Sauda has been no higher than that of the country as a whole, no doubt because so many young and able bodied workers have joined the community But during the past 14 years nearly a third of all the deaths have been due to croupous pneumonia where as croupous pneumonia is responsible for only 3 65 per cent of the total deaths in Norway Dr Elstad dismisses as improbable the explanation that the endemic pneumonia of Sauda is maintained by the persistence of a highly virulent type of pneumococcus in the community for typing determinations carried out by Dr Riddervold have failed to substantiate this view On the other hand it is remarkable that between 1920 and 1938 the output of manganese alloys has run parallel with the frequency of pneumonia from year to year

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month, his name can be seen later in the half-yearly index

FROM A POITRINAIRE

II

LAST week I was side-tracked from the intention to say something about sanatorium literature. In my palmy days—financially palmy, before I acquired a wife, a house and a family—I was a member of the Book Society and paid 7s 6d. to 12s. 6d. a month for the pleasure of reading a more or less prescribed book. I am certain that, financial reasons apart, I should not have long continued in the circle. The slavish monotony of reading every month the same book as all my friends were reading, the dreaded expectation of having to give my criticisms of it or, worse, to listen to theirs, the amassing of books many of which I cared little about—all these things would have been too much for me. It is better to buy the books one wants to keep, and to borrow the others from the excellent municipal library. One may not thus be able to discuss the latest best-seller with one's dinner-partner but I believe the maxim of my late headmaster never to buy a book until it is a year old is reasonably sound. Even on that basis I had fallen shamefully behind with my general reading and, despite the many distractions in the sanatorium, I have tried to remedy the fault.

A mere list of the books I have read in the past few months would serve no useful purpose but it may interest those who find little time for general reading to know which of these books I have added to my library. The Book Society member will doubtless jibe and jeer at our backwardness. First on the list are certain biographies—Queen Elizabeth, Prince Eugène, the two Charles's. Then I find a niche for the despised historical novel—one testy reviewer called their authors jackal-biographers, presumably because they pick off the juicy bits. Margaret Irwin's trio—"The Stranger Prince," "The Proud Servant," and "Royal Flush," preferably read in that order—take pride of place for they paint an enlightening picture of the life and happenings in the stirring days of the Stuarts. I liked her sly dig on the fly-leaf of one of them that "*none* of the characters in this book is imaginary." Next come three tales of adventure—"Gone with the Wind," "North-West Passage" and "Turning Wheels"—each in its way an epic because each has as its background a movement which profoundly affected the history of the respective countries. Reminiscences have not appealed to me with one outstanding exception—'Dodo' Benson's "As We Were" (now in the Penguins, and if you don't know what to do with old Penguins, send them to the nearest hospital). What personalities there were in these late Victorian days and how eagerly were their sayings and doings chronicled. Some of their bon-mots are still vividly in my mind; Oscar Wilde gazing at Frith's detailed painting of Derby Day and then turning to a friend to ask with bated breath "Was it really all done by hand?" Or that other Oscar, commonly known as O B, who confronted Tennyson at a garden party and announced "I'm Browning." The great man looked at him and, thinking of R B, fiercely replied "No! you're not."

* * *

Most of us who just missed the last war were genuinely disappointed at being deprived of a great experience which our elder brethren shared. The horrors or the glories of war or the high principles for which our country was fighting did not greatly concern us; it was the novelty, the big adventure that appealed. Perhaps it was the thought that now I should have to gather the experiences of war vicariously which set me reading war-novels. "Her Privates We," "The Spanish Farm," "No Hero this," and "War-birds" are all first-class books, but better than all these is a recently published volume called "Vainglory"—an episodic eye-witness account in bald narrative by British, French, German and other observers of various land- and sea-battles from beginning to end of the war. It is a moving story of how we magnificently muddled through and of the terribly efficient war-machine which was Germany's. Let us not under-rate that machine a second time.

The last book on my list is "The Letters of T E. Lawrence." It was given me by my staff as part of a Christmas gift and, feeling that we'd had a surfeit of Lawrence lately, I was slow to begin reading its 900 pages. But no novel could be more fascinating and my latent dislike for Lawrence gradually gave way to a warm admiration. Despite his vanities—he was part-Irish—and his excessive sensitivity, the man had greatness in him, it is the lot only of the genius to gain distinction as soldier, statesman, writer and engineer. Yet after reading the letters, a colleague and a man of discernment (but ex-public school and Lawrence did not conform to type!) was inclined to regard him first as an advertising mountebank and later as a moral coward. I feel like asking my readers, after Syd Walker, "What do *you* think about it, chums? Send me a post-card, will you?"

Such are some of the remembered books among the many I have read during the past nine months. You will say—and I shall agree—that it is an undistinguished and rather archaic list; but at least it bears out my contention that the victim of sanatorium routine finds uplift very difficult to pursue. Gone are the high resolutions to brush up my German, to re-read the classics, to become a student of history, even "Science for the Citizen" has lain by my bedside for months and only occasionally been pecked at. The shades of Marcus Paterson will doubtless rejoice.

* * *

I had been in the sanatorium only a day or two when I was told that so-and-so was a good nurse and somebody-else wasn't so good. What is a good nurse? And I mean good in the materialistic sense that one speaks of a good motor-car. A little reflection will show that the nurse has to satisfy several critics and as many "ifs" as Kipling's hero, for the qualities which the patient admires may not be those which the sister requires and the nurse whom the doctor appreciates may be detested by her colleagues. As a patient, I like my nurse to be attentive but not fussy, cheerful but not over-talkative, sympathetic but not pitying and above all, when I'm really ill, I need a nurse who can think for me. The casual nurse is anathema to the patient who needs things done for him but hasn't the spirit to ask. Efficiency is the open-sesame to sister's heart. her nurse must concentrate on her work and be methodical and thorough; to the older generation of sisters the epitaph for a good nurse might have been " She made a neat bed " Sister also expects the nurse to be discreet, observant and informative about the patients' progress and a good disciplinarian The doctor demands intelligence, a working knowledge of asepsis and an uncanny anticipation of his wants, though if he be young and susceptible and she has a pretty face or figure, a stupid nurse will get away with a lot The quality which her colleagues prize most in a nurse is loyalty—a quality which is, I fear, less common among women than among men, the sneak and the toady has few real friends If, besides, she can avoid being bossy or *catty or tactless or jealous—in other words, is a good* sport—she will indeed be popular Thoughtful, intelligent, efficient and loyal, what a paragon of virtues! Yet there are many nurses who are all of these and we are only now beginning to treat them decently

As for a good sister she, like a good sergeant major, is a priceless gift from heaven, and, like good sergeant majors, they are surprisingly numerous, particularly in the older age groups, which makes me suspect that, unlike the poet, a good sister is made, not born Incidentally it would be interesting to know what proportion of doctors' wives are recruited from the nursing profession It is a good apprenticeship

* * *

Tail-piece The Irishman who cleans our windows was singing the *Rose of Tralee* in a clear tenor I *congratulated him on his voice "Do ye know,* doctor," he said, " I was once singing at a local concert in Ireland When I finished, a friend o' mine said ' It's Caruso you should be with, Paddy ' ' But Caruso's dead ' says I, ' Shure and I know it ' says he "

PUBLIC HEALTH

Fever Beds in London

THE hospital accommodation for infectious fevers in London has been drastically reduced since war was declared The reduction was partly justified by the evacuation of a large proportion of the population at risk, who became the responsibility of the local authorities in receiving areas But a number of the beds in fever hospitals have been reserved for casualties, and in addition many of the most modern buildings contain so much glass which is difficult to black out and a possible source of danger from splintering that they have had to be closed The net result is that, even with the smaller population at risk, there is difficulty in finding beds The normal centralised organisation for dealing with notified cases of infectious disease and their removal to specific hospitals has been suspended because it was anticipated that air bombardment would make it difficult to move patients long distances by ambulance Instead the borough medical officers of health now deal with notifications in their own areas and arrange for the admission to local hospitals of such infectious cases as need hospitalisation This change, which seems admirable on paper, has yet to justify itself during an epidemic

Water Sterilisation in the Field

" The provision of potable water to troops in the field remains one of the principal elements conditioning the general health of armies " This opening sentence of a paper by Colonel Médecin Sillevaerts,[1] chief of the health service of the Belgian Air Force, applies not only to armies but to the conditions in our villages, where thousands of new inhabitants are settling apparently for the duration Even in those fortunate places which have a good supply of mains water, the possibility of their damage by enemy attack makes knowledge of easily improvised means of sterilisation of well water most valuable Col Sillevaerts has been experimenting on methods which can be entrusted to the soldier himself who sees an opportunity of filling his water bottle from a pond, a spring or a river and needs a simple means of making the water drinkable The colonel evidently understands the soldier and has done his best to make his methods easy Experiments with hypochlorites and chloramines showed that action was slow and with the sort of waters likely to be available not always complete Dead organic matter has a chlorine demand which may greatly reduce the amount available for bactericidal action The individual soldier cannot be expected to filter water before treatment, and even after filtration much organic matter would probably remain

Colonel W J Babecki *of the Polish Red Cross had* found that by adding, with the sterilising agent, citric or tartaric acid—that is, by sterilising in an acid solution—turbid and strongly polluted waters could be sterilised in 15 min This period seems to be the limit of the soldier's patience Sillevaerts and his colleagues have elaborated a fairly definite technique *Tartaric acid is more convenient to handle than citric* and it is more easily compressed into tablets if bicarbonate of soda (insufficient to neutralise) is added The effervescence produced by liberation of carbon dioxide tends to improve the taste of the water Chloramine-T dissolves more readily if arrowroot starch is mixed with it to aid disintegration of the tablet and to increase its bulk The formula for sterilising 800 c cm of water in the aluminium gourd used by the Belgian Army is —Tablet A (large) tartaric acid 0 1 gramme, bicarbonate of soda 0 1 gramme Table B (small) *chloramine-T 0 02 gramme,* starch, q s The instructions for use are as follows,—Fill a well-cleaned gourd with water, introduce therein one small and one large tablet, agitate well with many inversions The water may be consumed after half an hour The gourd must be cleaned carefully after use

One gathers that the acid and chlorinous water, which has a pH of about 4, has some action on the aluminium which tends to reduce the available chlorine The previous use of the gourd for beer, wine or broth has a similar tendency If this *method—which seems* good and simple—were used domestically, glass or stoneware vessels would be available

Horse-drawn Vehicles and Summer Diarrhœa

No very elaborate statistics are required to demonstrate that the decline in mortality of infants from summer diarrhœa has been associated in this country with a reduction in the number of horse-drawn vehicles on the roads. Is this correlation merely fortuitous or is it one of cause and effect, thanks to the partial disappearance of the housefly in urban communities from lack of suitable breeding places? In a recent paper Professor Graham Smith reviews the figures for England and Wales over the years 1901 to 1937.[2]

---

[1] *Brux médical*, July 7, 1939 p 1136

[2] *J Hyg*, Camb Sept 1939, p 548

This period, as he points out, runs almost from the birth of the motor vehicle to the elimination of the horse-drawn vehicle in towns. In 1901–05 the average annual death-date from diarrhœa and enteritis in children under 1 year of age was 25·4 per 1000 live births; in 1931–36 it was only 5·4. To this recognised correlation in the time sequence Graham-Smith adds the following observations. During the years 1901 to 1922 the course of the death-rate closely followed the course of the mean air temperature of the third quarter of the year; there were only four years in this period of time in which the fluctuations in the two curves did not correspond in their upward or downward movement. In 1905 and in 1917 the air temperatures were relatively high, but the death-rates were low; the third quarters of both these years were, however, very wet and therefore unsuitable for fly-breeding. In 1908 and in 1913 the mean air temperatures were low, but the death-rates were high; the third quarters of these years were, however, very dry and suitable for fly-breeding. Between the years 1922–37 the picture is very different Fluctuations between hot and cold summers are no less frequent than before, but fluctuations in the death-rate are only slight—though still following the temperature curve to some degree No epidemics occurred, although judging from the temperature curve and past experience several might have been expected. Graham-Smith's interpretation is that, through lack of breeding facilities, the urban fly population had reached so low a level by 1925 that, in spite of subsequent hot summers, it no longer had any serious influence on the dissemination of the disease If this be a true interpretation, it is strange that the diarrhœal death-rate in infancy has declined no less in the rural parts of the country than in towns. The case against the housefly may be logically good, but even the logician could still hardly regard it as proven.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 23, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1146; diphtheria, 889; enteric fever, 71; pneumonia (primary or influenzal), 300; puerperal pyrexia, 156; cerebro-spinal fever, 10; poliomyelitis, 38; polio-encephalitis, 2; encephalitis lethargica, 6; relapsing fever (Stockport), 1; continued fever (Paddington), 1; dysentery, 22; ophthalmia neonatorum, 63. No case of cholera, plague, or typhus fever was notified during the week

Deaths—In 126 great towns, including London, there was no death from smallpox or measles, 1 (1) from enteric fever, 2 (0) from scarlet fever, 12 (3) from whooping-cough, 18 (0) from diphtheria, 54 (4) from diarrhœa and enteritis under two years, and 4 (1) from influenza The figures in parentheses are those for London itself.

Doncaster and Salford each reported 2 deaths from whooping-cough. Fatal cases of diphtheria were scattered over 14 great towns, Liverpool reporting 3, Stockport and Birmingham each 2 Nottingham had 6 deaths from diarrhœa, Liverpool and Middlesbrough each 5.

WEEK ENDED SEPT 30, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1163; diphtheria, 904; enteric fever, 68; pneumonia (primary or influenzal), 312; puerperal pyrexia, 162; cerebrospinal fever, 19; poliomyelitis, 43; polio-encephalitis, 4; encephalitis lethargica, 4: dysentery, 23; ophthalmia neonatorum, 66 No case of cholera, plague, or typhus fever was notified during the week.

Deaths—In 126 great towns, including London, there was no death from smallpox, 2 (0) from enteric fever, 1 (0) from measles, 2 (0) from scarlet fev 9 (2) from whooping-cough, 16 (0) from diphthe 55 (8) from diarrhœa and enteritis under two yea and 17 (3) from influenza. The figures in parenthe are those for London itself.

Blackpool and Liverpool reported deaths from typh Fatal cases of diphtheria were scattered over 12 great tow Chester reporting 3, Liverpool and St Helens each 2. Li pool had 6 deaths from diarrhœa, Sunderland and Cardiff eac

. . . . IN ENGLAND—NOW

ON Sept. 3, in a room of our new medical scho the secretary of the university, the dean of the facu and I listened to Birmingham's first Prime Minis telling us on the wireless that for the second time our lives Britain and Germany were at war. looked out from this room to see our beautiful n hospital opened only a year ago being barricad with sandbags by medical students working h navvies, some clad only in shorts, revealing brow tanned chests and backs When the medical histo of this war is written I hope something will be sa of the work of the medical students. The Minis of Health remarked recently that he could not belie that they wished to profit by the circumstances war. They certainly do not, and in point of fact th are losing, not profiting. They have paid fees for medical education which has been suddenly interfer with, and few of our students are affluent. When a raids begin, they will be doing work perhaps mo valuable than the salaried first-aid workers If t Government cannot see its way to reward them on cash basis, a couple of extra units of petrol a mon might prove very acceptable.

There seems some connexion between abort air-raids and human abortion; a false air-raid war ing the other day produced four emergency calls f one obstetrician alone. Possibly a knowledge of the incidents has led the authorities to construct an a raid shelter in the cellar under the consulting-roo of our leading gynæcologist. This gynæcologist h already earned fame because the Ministry of Heal proposes to pay him as a general practitioner. The is considerable indignation here because quite number of well-established *consultants have bee offered the lower rate of pay in direct contradictio* to the published regulations of the service.

For medical as for civil defence purposes Englan has been divided up into regions. The Midland regio consists of five counties, Warwick, Worceste *Hereford, Stafford and Shropshire, under the contr* of a hospital officer (Colonel A. B. Ward, C.B.E D S O.), assisted by five group officers. Birminghan West Bromwich and Smethwick, with affiliated town containing base hospitals, form the largest group the area, and probably in England, since it is large than any of the London sectors. The emergenc hospital organisation in the Birmingham group differ fundamentally from that in London; whereas i London the Minister of Health has cut down th number of beds to 200 in the large teaching hospital and transferred their equipment to advanced bas hospitals, in Birmingham he has increased the numbe of beds in the central hospitals. Thus the Genera Hospital which has 480 beds in peace-time wa scheduled to increase to 1200 beds in war-time The reason for this *differentiation is the absence o* potential advanced base hospitals. The base hospital are situated at outlying towns such as Lichfield Tamworth, Nuneaton, Coleshill, Alcester, Bromsgrove Worcester, Hereford and Oswestry. These arrangements have made the allocation of medical staff a difficult one, because in addition to serving the casualty hospitals nearly all the Birmingham consultants have to lend a hand at base hospitals; actually some radiologists have to supervise work in four or five hospitals. For this reason many are complaining bitterly of the inadequacy of the petrol rations ; indeed, if others are treated as severely as I have been our Emergency Medical Service will completely break down Several of my colleagues have already joined the ranks of the cyclists, a possible reason why quite a few have lost weight since war was declared Another interesting change in habits is a praiseworthy attempt to cut down the laundry bill by wearing soft instead of stiff collars

As the Children's Hospital is in an evacuation area, the number of beds for children has been cut down to 100 (it also houses 100 emergency beds for adults) Perhaps this is why a pædiatrician now acts as a group officer Twenty five thousand children have been evacuated from Birmingham, but quite a number have returned In spite of this there are 110,000 elementary school children still left in the city, and if the children under school-age and the children in West Bromwich and Smethwick are added, there must be some 200,000 in this area , yet the hospital accommodation for them has been reduced by two-thirds One must admit that the arrangements made by the Ministry of Health for the evacuation of patients at the outbreak of war were necessary, excellent and effective , but the Ministry did not make our hospital problem easier by ordering that admissions should be limited to acute cases, and by preventing the regular evacuation of patients from casualty to base hospitals, apparently because by so doing they would become liable for the cost of transferred patients Hospitals have now been allowed to admit patients up to their peace-time capacity, and although the Minister of Health is said always to have visualised "this reflux into the normal hospital accommodation," the fact remains that the vision was restricted to Whitehall The embargo against sending patients from casualty to base hospitals has not even yet been lifted, but in spite of this we are striving to keep at least a third of the normal beds empty and, of course, the emergency beds Outpatient work, although restricted, has never really ceased, but the number of patients seeking admission is still small, and corresponds with the slump in private consulting practice Can it be that much of medical practice is a luxury and can be dispensed with in a crisis, or with income-tax at 7s 6*d* in the pound ?

* * *

Since war started the University of Manchester has had active teams of sand-bagging, A.R P , fire-fighting, and first-aid workers, headed by professors and lecturers who have taken their turn at all night duty, sleeping in improvised quarters in the arts building, the staff house, or the gymnasium The women who share in the work camp in their union building A special team of men spends the night in the central tower above the topmost roofs, on the lookout for possible fires and each member takes a three-hours watch Requests to all departments of the university to reduce expenditure can be met to some extent without difficulty in the libraries by the suspension of the subscriptions to a large number of German publications In 1933 the number and cost of these periodicals had increased so much that the English and American Library Associations made a monetary and monitory protest, with the result that the grievance was reduced by 25 per cent Even now the medical library alone pays more than £200 a year for German periodicals So here is an obligatory saving to begin with The scientific value of the contents of this literature would in any case have had to be watched now that so many of its ablest contributors publish their work in the journals of other lands

It was a strange unreal sight to see the usually busy wards and out patient departments of the voluntary hospitals empty and the medical and nursing staffs with nothing to do Still, they also serve who only stand and wait Permission to carry on as usual at half strength until occasion arises has been a great relief to the many interests affected by the Ministry's orders

Over a hundred second and third year students from St Mary's in London have been evacuated to Manchester Only some of the teaching staff have accompanied them, but if any help is needed it will be afforded by their local colleagues With an unusually large entry of our own students full time occupation of lecture theatres and laboratories will be necessary All teaching in the university will end at sun-down, as it is impossible to black out the windows in its many buildings and local motor-bus transport to the suburbs which students use is difficult and insufficient after dark Clinical teaching at the hospitals has been at a standstill during the past month, but with the partial opening of the wards it has started again It has been possible to hold the final conjoint examinations of the London Colleges at the Royal Infirmary and the St Mary's Hospitals last week The vivas were taken at the medical school, and some 150 students were dealt with by a London and a local examiner in each subject—pretty heavy going for two men in one week

* * *

Measures for medical war work in Leeds have been planned with vigour and foresight The local emergency committee, now the medical war committee, has been active for eighteen months, and early instituted subcommittees to deal with special problems A small executive committee has met daily for an hour or more since the outbreak of war All our pains have had their reward and I think the co-ordination of medical activities in Leeds is as good as anywhere We have modified the B M A scheme for protection of practices to meet local requirements and the success of this can be judged by the fact that the contract has been signed by 90 per cent of our general practitioners The response to requests for local service has been excellent, and although many doctors have had to leave the city for service elsewhere the base and casualty hospitals and the first-aid posts have secured their personnel A large transfusion service has been formed with complete medical and nursing staff The health committee of the city council has given great assistance to the working of this service since the emergency as well as in other directions, but there is still need of financial assistance, and it does not appear that any help from the Government can be looked for The English people have never been lovers of organisation based on logical principles, but if in the past we have had a guiding rule in public health administration, it has been to make the central government advisory, while local government has been executive With a vigorous team, as we have in Leeds, this works excellently, but now help is needed from the centre , and it is being withheld

* * *

The Southern Hospital and the David Lewis Northern Hospital in Liverpool have moved out to allegedly less dangerous zones The Northern has gone to the attractive modern buildings of the College of St Gregory Pulv (the real name is, of course, known only to the select 100,000 or so of Liverpool citizens who are interested) , on the extensive playing fields the honorary staff can help to win the next battle of Waterloo by practising their golf shots, or even by kicking a football about The Southern is installed, or rather is gradually installing itself, in the recently evacuated Blank Sanatorium It must be a great blow for a hospital staff to strike its tents, and pitch them elsewhere , transferring to the new "local habitation ' its own particular "name," with all that it means in team skill, equipment, and the power and means of doing for the community all and more than was done for it in the old buildings The enormous task of changing unfamiliar bricks and mortar into a living working hospital is being done with great cheerfulness, even though it has its moments of exasperation Hospital doctors are impatient people who want to get on with their job of looking after the sick and they do not take kindly to the delays of centralised administration authority. From what I have seen of bureaucratic administration in the last few weeks, there is a strong case for a wide devolution of executive authority to groups and individuals who are best able to undertake particular practical tasks

How many sanatoria have been evacuated, or partly evacuated, throughout the country? Here, I understand, some 700 tuberculous patients have been sent home; the one sanatorium still working as such has 200 beds, and is already quite full. Now it is true that the Ministry of Health has defined a standard of fitness for the discharge of a patient to his home; but the fact is that hundreds of sputum-positive patients have been scattered through the community as dangerously as if an enemy bomb had made a direct hit on a store of radium. Only yesterday a colleague told me of an evacuated patient whom he had visited at his home—a municipal tenement flat with three main rooms, all very small, housing a family of eight, including four young and therefore vulnerable children. The man had fibrocaseous phthisis, with active tubercle bacilli in the sputum. Meanwhile it is almost impossible, I find, to get a patient into a sanatorium unless he can afford to go to a private one; and I find a general feeling among all but those who have been actively engaged in looking after tuberculous patients, that this is no time to be bothering overmuch with the phthisical. Even if there is a war on, need the community be quite so suicidal? I cannot help but wonder, in the light of what one must assume to be a thought-out policy, what value the administrators of "tuberculosis schemes" really put upon them. No body of practising doctors who know from first-hand experience what phthisis means in the homes of the people would be as reckless as this; for not only will many patients who are just holding their own in sanatoria fail and die when transferred to the less protected conditions of home, but they cannot help handing on the torch of their infection to their intimates

* * *

Your Peripatetics have already noted the outbreak either of fear of or hope for the establishment of state medicine and hospitals after the war. Here, as elsewhere, these hopes and fears abound. One thing is sure, we are entering now, in medicine as in other things, into the unknown; old things are passing away. I note, however, a widespread lack of the one stimulus that would enable us to enter this "brave new world" with hope and zest—the strong sense of a medical ethos and true tradition, to which we are inevitably committed and must steadfastly defend, and without which no outward forms can have any real life. It is something deeper than any mere preference for the voluntary system or any other system Burke said of Society—and it can be said of Medicine—"It is a spiritual community, a partnership in all science, a partnership in all art, a partnership in every virtue and in all perfection. As the ends of such a partnership cannot be obtained in many generations, it becomes a partnership not only between those who are living, but between those who are living, those who are dead, and those who are yet to be born" And in our days, as in many aspects of contemporary life, so in *Medicine*, there is something of a collapse of the fundamental framework of the social and cultural *order* The war will drop high explosive into the *organisation* and practice of medicine, bringing about "the removing of those things that are shaken, . . . that those things which are not shaken may remain." It is sad that so many of us face the prospect with a flat joylessness, which is itself a measure of the cracks in our already crumbling edifice.

LETTERS TO THE EDITOR

THE ULCER PATIENT

SIR,—In your leading article of Sept. 30 you refer to the address of my friend, Professor Meulengracht, on the treatment of hæmatemesis as if he had described a new and revolutionary method of treatment. As confirmation of its value you refer to the review of 241 cases of hæmorrhage treated by Graham, Alexander and Kerr in Glasgow published in the same issue of THE LANCET. But these authors say that the improvement in their results occurred when they altered their regime "by shortening the semi-starvation period and giving the patient a diet of greater calorie value, of the type suggested by Hurst" . . ."None of those treated with the newer high-calorie intake (Hurst's diet schemes) died," compared with an earlier mortality of 9·5 per cent They give a reference to a paper of mine published in 1931, but the diet, which they calculate has a value of 2900 calories, is the same as that described in my book on ulcer published with Stewart in 1929 and is what I have used at Guy's ever since 1919 I do not suggest that I originated it, but it is certainly not a new idea to provide an adequate amount of food and drink as soon as active bleeding has stopped—i e., in the majority of cases after an interval of 24 hours—as this treatment has been widely used in Great Britain for at least twenty years. It is in consequence of this that the general mortality in England, as distinct from the hospital mortality, is, as Ryle and I showed in 1937, about 2 per cent., which is approximately the same as Meulengracht's (10 deaths out of 491).

We allow no food by mouth for twenty-four or forty-eight hours, during which ½ to ¾ pint of normal saline solution is given four-hourly by rectum After that the ordinary treatment of ulcer with hourly 5 oz. feeds is instituted at once, there is no slow increase from starvation to an adequate fluid and calorie intake

Dr. Avery Jones[1] has shown that the mortality after hæmorrhage is to a great extent due to dehydration and not, as suggested by Meulengracht, to starvation He tells me that he thinks the great differences in the mortality statistics at different London hospitals are due to the fact that at some hospitals small feeds are given for a considerable time after the short period of strict starvation, whereas at others (such as Guy's) 5 oz hourly feeds are given at once The starvation for twenty-four or forty-eight hours in itself can do no harm, especially when fluid is given by rectum, but he believes that it is the withholding of an adequate quantity of fluid in the following days which is dangerous

So far, therefore, as the avoidance of starvation and dehydration are concerned our treatment is much the same as Meulengracht's He, however, gives cheese, slices of meat and a "variety of dishes," which I am convinced are most unsuitable for patients with an active ulcer, whether it has recently bled or not I should regard it as very unfortunate if Meulengracht's diet were adopted in Great Britain just at a time when the treatment of ulcer has become more satisfactory than ever before A strict diet and rest in bed, continued until all the evidence points to complete healing, followed by a lifelong post-ulcer regime is resulting in the gradual diminution in the need for surgery. Davies and Wilson's invaluable work has emphasised the importance of the psychological factor in ulcer; but, as it is impossible to prevent domestic and business worries, in practice the post-ulcer regime nust consist of an easily digestible diet, regular meals rith intermediate feeds, limitation of smoking, and dequate rest—all of which are possible for every atient

---

[1] *Brit med J.* 1939, 2, 332.

I am, Sir, yours faithfully,

Oct 6 ARTHUR F HURST

THE PSYCHOLOGICAL FACTOR IN HÆMATEMESIS

SIR,—There appears to be some misunderstanding of the arguments for and against the psychological causation of hæmatemesis A knowledge of the frequency of ulcers in head injuries dates back at least as far as the eighteenth century, and Camerer[1] in 1818 published unsatisfactory experiments suggesting that the autonomic was involved Schiff[2] placed the nervous hypothesis on a firm basis by excellent work in which he produced ulcers in the dog by interference with the midbrain From Virchow onwards to the close of the century, continual support was forthcoming for the psychological view, and the controversy was between those who thought that mental upsets produced functional upsets and these in turn led to ulcer (Rosenbach, Strumpell), and the opposite school which held that people with weak bowels were especially liable to ulcer and mentally more irritable and unstable because of their weak bowels (Romberg, Kolk, Alt, etc)

With the turn of the century and the growth of the doctrine of psychosomatic unity, this controversy lost its meaning Nevertheless, we still perceive two types of ulcer with intermediate forms Ulcers occur in tough phlegmatic men with healthy bowel function, although they are becoming rare in England owing to changes of diet, we see them sometimes in Oxford in patients from the Cotswold area, and they are common in the Rhineland hospitals in the South of France and parts of the Danube valley where local tradition blames new wine But the second type of ulcer is the important one for us, the ulcer which we cannot diagnose clinically because it appears sporadically as a result or accompaniment of severe indigestion, and sometimes it seems as if the presence of an ulcer makes little difference to the severity of the indigestion It is in this type that the emotional factor appears so important

Dr Davies, if I understand him aright, argues that the sequence is psychological upset→motor secretory disturbance of the stomach with formation of erosions →progressive deepening of the erosion until it reaches a blood vessel or the peritoneum→struggle in mental sphere relieved→healing of ulcer→probable negative X ray in three weeks' time→period of relief until next episode Objections to this theory are 1 In the experimental animal violent and prolonged motor secretory disturbances are necessary to produce erosions and these erosions are not accompanied by the large outpourings of lymphocytes seen in most human cases of erosive gastritis 2 There is no radiological or clinical evidence that emotional disturbance produces a gastric colic and hypersecretion comparable with that found in the pyloric syndrome where the stomach may be exposed day and night to a stream of maximum strength gastric juice and gross hyperperistalsis And yet in these stomachs traumatic ulcers produced for instance by the beak of a rigid gastroscope, heal in a few days[3] 3 Admittedly gastric tone can't be measured directly since the unpleasantness of swallowing a recording apparatus inhibits it But if we estimate tone radiologically (and animal experiment shows that we can), we find hæmatemesis on the whole associated with low tone stomachs 4 There is no evidence that ulcers are especially liable to heal in the three weeks which are usually allowed to elapse before an X ray examination is made—i e, ulcers are just as hard to find if the *examination is made at once, and as I have already* pointed out[3] there is no evidence at all that ulcers are responsible for most hæmatemeses and a little evidence that they're not 5 The time interval between the emotional upset and the hæmorrhage is too long And why is it so uncommon for the first severe mental crisis to lead to trouble? And why are sensitive children with sensitive stomachs immune? If the animal experimental work has any bearing on the matter at all some cases ought to bleed within a few hours of a "crisis" Actually chronic mental strain seems more dangerous than acute 6 The midbrain theory doesn't account for the large number of hæmatemeses and perforations (far more than in men) which occurred in young unmarried women everywhere in N W Europe and the English speaking world in the latter part of the nineteenth century and early years of the twentieth (Jennings[4]) Nor does it account for the large group with a history of recent severe constipation or abuse of aperients, or for those interesting cases who have given up aperients for years on medical advice, but who continue to show some of the severest forms of gastritis which we have ever seen and who from time to time develop shallow ulcers which bleed, despite the fact that HCl is almost or completely absent 7 Lastly the midbrain theory doesn't account for the superiority of proper feeding methods in the treatment of hæmatemesis This superiority was repeatedly claimed by Lenhartz and his followers (1895–1912), and Spriggs,[5] reviewing some of the literature thought that the case for feeding was proved In badly treated series of hæmatemesis cases 20–30 per cent of deaths are due to multiple or acute lesions If early feeding is adopted, nearly all these cases survive and the only question is whether the uncommon chronic ulcers with eroded vessels would have been saved by a form of treatment which has a lethal effect on acute lesions (Incidentally why is the feeding treatment of hæmatemesis ascribed to clinicians who were in their nurseries when its value was first shown *)

Instead of the midbrain hypothesis, might I suggest an alternative explanation which seems to me to [illegible] not only Dr Davies's facts but a great [illegible] other ones as well? Unpleasant emotion or fear increases colonic tone, empties the small intestine [illegible] to stagnation in the stomach May not food stagnating in the stomach irritate it? It is always so difficult in gastroenterology to know which is the cart and which the horse, but there is no doubt that delay in an *inactive* stomach and irritation are associated And may not increased colonic tone and fermentation from undigested food drive [illegible] up the small gut, make it more irritable and start the vicious circle of gastroenteritis? Hypersecretion and hyperperistalsis and the rapid emptying of the stomach would then be purposive reactions designed to restore the sterility of the upper gut, or to overcome the obstruction brought about by swelling of the pyloric [illegible] A theory of this sort would bring the psychological, dietary and [illegible] into line and I believe it [illegible] to [illegible] thirty odd anomalies about peptic ulcer which Alvarez says have never been answered by one theory. Furthermore, it would fit the geographical and occupational distribution of ulcers, the changes in age- and sex-distribution which have occurred, and the spontaneous and experimental ulcers in animals.

---

[1] Camerer, Thesis Stuttgart 1818 cit Andral G A, A Treatise on pathological Anatomy 1831

[2] Schiff M, Arch physiol Heilk 1851, 13, 30

[3] [illegible] Lancet 193[illegible] 2, [illegible]

[4] [illegible]

[5] Spriggs E I, Quart J Med 191[illegible]

I am, Sir, yours faithfully,

Oxford, Oct 1. DENYS JENNINGS.

POSITION OF MEDICAL STUDENTS

SIR,—Although medical students, as the Minister of Health has pointed out, "do not wish to profit by the circumstances of war," nevertheless most are dependent financially on parents who, as professional men in most cases, are particularly hard hit by the outbreak of hostilities This leaves many of these students in the emergency medical services in the anomalous position of finding difficulty in finishing the course, necessary for qualification, purely due to lack of money This difficulty is increased by the extra expense of travelling to "safe areas" for parts of the qualifying examination In addition, important and responsible work is being done which would normally fall to qualified men

Medical students are also faced by the fact that they have no form of contract with the Ministry of Health and are thus completely unprotected should any accident occur during the course of their work

This state of affairs is surely worthy of consideration

I am, Sir, yours faithfully,

NORMAN C. B. TRAPPS.

Westminster Hospital, S W., Oct 2

EVANS' RECENT ADVANCES IN PHYSIOLOGY

SIR,—In a book in which each edition is marked by the introduction of chapters on entirely fresh topics, it is of some interest to the reader to know how much of the book deals with subjects previously treated and how much is quite new. This must be my formal excuse for seizing the opportunity for which every author longs—that of correcting his reviewer. Not three, as stated in your issue of September 30, but four of the twelve chapters in the 6th edition of "Recent Advances in Physiology" are new, the chapter on the cortical control of movement which escaped observation being, unfortunately, not the least—which received its deserts—but that unlucky enough to be placed last.

I am, Sir, yours faithfully,

University College, London, Oct 4 W. H. NEWTON

FREUD AND SEX

SIR,—There are occasions when it is wise to disregard the old counsel *de mortuis nihil nisi bonum,* and this is one of them It is both appropriate and necessary to record that Freud's unhealthy obsession with sex has been responsible to an overwhelming extent for the depravity of mind and perversity of taste that has affected, among others, English people and particularly English women since the last war. In itself a sufficiently grave evil, this result has had consequences immeasurably malignant, for it undoubtedly paved the way for wide acceptance of that complete Jewish ideology out of which sprang bolshevism, nazism and the present war.

I am, Sir, yours faithfully,

Harley Street, W.1, Oct. 2 A. RUGG-GUNN.

AERIAL DISINFECTION

SIR,—I have read with interest the leading article entitled *Town into Country* in your issue of Sept 9, together with the preventive measures set out on page 618. My object in writing this letter is to point out the potentialities of a preventive measure about which extremely little appears to be known even among the medical profession. I refer to air sterilisation by the use of germicidal aerosols, a subject which has apparently only been studied by Pulvertaft in this country, although it has long occupied the attention of Trillat in France.

A team of workers has been occupied here for two and a half years (during the latter half of which time the writer has been associated with the work) in investigating the possibilities of preventing infection from one individual to another. This has been attempted by means of a germicide atomised into the air, which is practically imperceptible to the senses and is harmless to those breathing the air, although at the same time it is lethal to bacteria While we have in the main been able to verify the results obtained by the aforementioned investigators with laboratory cultures of ordinary bacteria, we have concentrated especially on the sterilisation of the bacterial flora of the salivas of normal man. In other words the air has been contaminated by artificial dissemination of fresh saliva, such air being subsequently cleansed by treatment with a germicide mist We have not yet utilised salivas known to be contaminated with human pathogens, but meanwhile, for convenience, have substituted animal pathogens It is, however, logical to assume that the particular micro-organisms we have used would not react differently to their human counterparts

Although we have done a vast amount of work, we have, so far, refrained from publishing any of our results, as we felt that the knowledge we had gained should not be broadcast until we were absolutely sure of our ground We were aware also that, by the substitution of suitable chemicals for germicides, certain workers had claimed to be able to neutralise poison war gases, and although we have done little in this direction, our observations on the physical behaviour of "mist" particles in the air should unquestionably prove of value in solving gas decontamination problems

The fundaments of our results of rigorously controlled experiments carried out in a closed atmosphere in specially constructed chambers are briefly summarised below.

(1) With a concentration of 1 c.cm of germicide in about 500,000,000 c.cm of air we are able to "kill" at least 99 per cent. of atomised broth emulsions of laboratory cultures of bacteria such as *B coli*, *C. xerosis*, and gram-positive micrococci within five minutes. With one-tenth of this concentration we may completely sterilise the air within one hour.

(2) The contact time has to be extended to 15–30 minutes, or the concentration raised, in order to obtain parallel results on the natural flora of saliva

The possibility, or, one may say, the probability that the surviving organisms are so badly damaged that, although still capable of growth on laboratory media. they would be rendered avirulent is obvious from one's knowledge of infection and immunity. We ourselves are on the point of carrying out the necessary confirmatory experiments, but Trillat seems already to have proved this point to his satisfaction.

Finally, I am of the opinion that we are in possession of a germicide and a technical knowledge of the best means of applying it as an aerial disinfectant, which we have every reason to believe should prove of inestimable value in preventing the spread of air-borne epidemic diseases, and I feel that our experimental unit should be utilised in a practical manner by the civil or military authorities during the present emergency

I am, Sir, yours faithfully,

C C TWORT,
Director of Research

Portslade Laboratories, Sussex, Sept. 20

CHEMOTHERAPY OF BRONCHOPNEUMONIA

SIR,—In your leading article of Oct 7 you ask "What of the appalling loss of life from bronchopneumonia in early childhood?" Our experience with M & B 693 (*Medical Officer, Aug* 5, 1939) strongly suggests that the saving of life in this condition by this drug is just as striking as in lobar pneumonia Our results in whooping-cough bronchopneumonia showed a reduction of mortality of 80 per cent. compared with previous years' experience, in primary infantile bronchopneumonia there were 2 deaths in 32 cases, in all the fatal cases the patient was practically moribund on admission The youngest patient treated was a baby of five weeks with whooping-cough and pneumonia (dose 0 08 g four-hourly) who made a brilliant recovery

In using this drug it is essential to give four-hourly doses I stress this point as I find some practitioners are inclined to give it three times a day only, which means a twelve-hour interval during the night, during which time the concentration of the drug is likely to fall to a low level in the blood The drug is much better tolerated by children, in whom nausea and vomiting is comparatively rare, compared with adults

I am, Sir, yours faithfully,

B A PETERS

Ham Green Hospital and Sanatorium, Bristol, Oct 9

EVACUEES AS RESEARCH MATERIAL

SIR,—We have been informed that research is to proceed in war time I would like to draw attention to the unique opportunity which the evacuation of town children furnishes for psychological, nutritional and sociological research, and to stress the importance of not missing such an opportunity "Psycho-sociological" research is far too much neglected here The journals which do exist to deal with it tend to be more concerned with speculative philosophical abstractions, than with good solid collection of facts Nevertheless it is most important to try and determine the rôle of social factors in mental and nervous diseases (as is being done in the nutritional field) Treatment in psychiatry is generally palliative and so time consuming that its application on a wide scale will always be fraught with the greatest difficulty On the other hand, if important sociological factors can be found, prophylactic measures become a possibility on a far wider scale. The question is interesting and controversial, as there is much evidence to show the intrinsic psychopathology of mental disorder However it need not be contradictory A very interesting investigation from Chicago shows that delinquency, schizophrenia, G P I, alcoholism and certain other psychoses—manic-depressive insanity being a notable exception—occur in the poorest zone of the city (where there is a shifting population) irrespective of race The evidence for the co-existence of schizophrenia and delinquency is interesting as it illustrates that accepting a sociological background does not exclude the psychological factors. It seems that in a very bad environment delinquency is a sign of health It is the aggressive individual's reaction and his aggression becomes accentuated, on the other hand, in the presence of over aggressive companions the introverted individual tends to retreat further into himself, especially in overcrowded poor neighbourhoods where there is no escape

The interrelationship of psychological and physiological health is another question needing investigation In inquiries of my own I found that there seems to be a definite relationship between poor physique and nervousness in children—the war has interrupted a continuation of this inquiry as to which comes first—results which I cannot at present reconcile with other findings of mine that nervousness was less amongst poorer children than rich children, perhaps the answer among the poor was "less fussing" on the parents' part How will "lack of parental control" affect evacuees? There are also interesting problems of physique itself on which the evacuation should throw light, is poor physique due as some contend to poor nourishment, or primarily due to lack of fresh air and sunlight? However I hope I have written enough to show that a study of the evacuees might throw light on many dark places Once again, if research is to continue, may I urge the importance of such a study as I have suggested If such an investigation were undertaken, it could also be made "practical" by giving psychiatric advice while the investigation was in progress

I am, Sir, yours faithfully,

W LINDESAY NEUSTATTER

Department of Psychological Medicine,
Guy's Hospital, S E 1 Oct 7

MEDICAL LIBRARIES

SIR,—In your issue of Sept 23 you indicate that most of the medical libraries in London have been closed as a result of the emergency I shall be glad if you will tell your readers that the library of the Royal Sanitary Institute has been open both for reference and lending purposes, and will continue open as long as this is possible It will, however, be necessary to close the premises an hour before sunset during the dark part of the year to enable the staff to complete their work before the blackout period commences The library will not be open on Saturdays

I am, Sir, yours faithfully,

J. DUDLEY ROBINSON,
90, Buckingham Palace Road, S W 1, Oct 6 Secretary

The Lancet 100 Years Ago

October 12, 1839, p 93

Specimens of Clinical Instruction, from a correspondent

We propose to give occasionally a slight sketch of the mode in which surgeons and physicians in our public hospitals instruct their pupils We will commence with Sir Anthony Carlisle Scene Wards of Westminster Hospital Oct 6 The venerable knight passes by several beds and looks at his patient or not as it suits his humour If a bandage is about to be removed to show any disease or injury he exclaims 'Tut man I don't want to see it

Mr Lynn exhibits a patient whom he has reason to suspect has stone in the bladder but he would not consent to be sounded Sir Anthony speaks ' Now, friend you'd better let us try to find a stone, sounding's nothing man only like putting a feather up your nose, nothing worse Besides, it's a hard matter to cure a disease when we don't know what it is it's hard enough when we do know, but harder when we don't "

OBITUARY

HARVEY CUSHING

M.D. HARVARD, F.R S.

Harvey Cushing died of coronary artery disease at his home in New Haven, Connecticut, on the morning of Oct 7. Almost exactly six months before, he had been presented by his former pupils and assistants, members of the Harvey Cushing society, with a bibliography of all his writings on the occasion of his seventieth birthday. This was the last of a long series of tributes from surgical and scientific societies the world over. For Harvey Cushing was everywhere recognised as the founder of modern cerebral surgery.

Harvey was the fourth in the direct Cushing line to follow a surgical career. His father, a general practitioner in Cleveland, was elected to the chair of obstetrics and gynæcology at the local university of Western Reserve. He had nine children by his wife Betsey, and Harvey was the last. In due course, the younger Cushing went to Yale, where, in the intervals of playing baseball with enthusiasm, he came under the influence of Chittenden, the nutritional physiologist. After graduating in arts at Yale, he went on to the Harvard medical school, to take his M.D. in 1895. He worked as a surgical intern in the Massachusetts General Hospital, and he records the primitive state of neuro-surgery there at that time.

In 1896 Cushing went to the Johns Hopkins Hospital at Baltimore as junior assistant to William S Halsted Halsted was a scholarly, shy man, as much concerned with physiological principles as with surgical technique As progressive refinements, he introduced rubber gloves, fine silk, and a fastidious gentleness in the handling of the tissues. This tradition of infinite care and patience was passed on by Cushing. But if Halsted meant much to Cushing, so also did Osler Cushing lived next door to him, and between the two there grew up a warm and lasting friendship. Long afterwards, when Osler died, his wife turned to Cushing to write his memoir Quietly and without relaxing his already full operative routine, Cushing set to work. Each morning, he wrote until ten or eleven, and in five years the great work was finished There have been more polished and less prolix biographies, yet none have succeeded in weaving together so complete a picture of a man and his times. Cushing effaced himself entirely from the scene so that only those who knew both could tell how often he was the unnamed actor on the stage. The book was awarded the Pulitzer prize as the best biography of the year.

To return to Baltimore. Cushing was fascinated by the new X rays, and took the first radiogram at Johns Hopkins. These not only launched him on his pen-and-ink career but also turned his interest towards neurology. By chance, a case of hæmatomyelia due to a gun-shot wound of the spine came under Cushing's care, and he was able not only to locate the bullet with the X rays but also to follow the gradual disappearance of anæsthesia and pareses His pictures were taken with a "decrepit and perverse static machine, as big as a hurdy-gurdy and operated in the same way —by turning a crank."

Then, in 1900, he crossed the Atlantic with Osler to see European experimental neurology. Horsley he found so busy that only his evenings at home could be given to research. In Switzerland, he worked for a year with Kronecker and Kocher. Here he demonstrated that a rise in intracranial pressure results in a rise in systematic blood-pressure. He next migrated to Mosso's laboratory at Turin, then on to Sherrington and Grunbaum at Liverpool, where he assisted in the experimental delineation of the motor cortex in apes. His equipment as a neurosurgeon was so far entirely experimental. When he returned to Baltimore in 1901 he petitioned for a post as neurosurgeon at the clinic. His chief was staggered, and suggested orthopædics as an alternative, covering all the surgical aspects of neurology Cushing was not abashed, but continued to do general surgery, and soon the neurological patients began to come. From 1901 to 1912 he worked at Baltimore, in the hospital and in the Hunterian laboratory He was satisfied with nothing short of perfection in each surgical procedure. At first, most of the cranial operations were miserable failures. But he persevered, and gradually successes came

At this time he developed and described the operation for subtemporal decompression. To perfect cerebral hæmostasis he devised a clamp to apply a small silver clip to bleeding vessels. Most important of all, he found that in the closure of the scalp the galea or deeper fascial layer must be carefully sutured separately to prevent the leakage of cerebrospinal fluid. Like Halsted, he was much concerned with physiology. He observed the "weeping" of the human choroid plexus in the opened ventricle, though it was left to his pupil Weed to complete our knowledge of the circulation of the cerebrospinal fluid He charted the sensory as well as the motor areas of the cortex in patients, under local anæsthesia And he began his studies on the physiology of the pituitary, which culminated in his description of the basophil adenoma with its associated "Cushing's syndrome"

In 1912 he moved to Boston to become professor of surgery at Harvard and surgeon-in-chief to the Peter Bent Brigham Hospital. Here he became a whole-time professor, free from the worries of private competitive practice. But the war was at hand. Cushing joined the B.E F. as director of a United States base hospital It was an interlude which did not really advance his surgical career. He has described it in "From a Surgeon's Journal" (1936).

From 1919 to 1933, Cushing worked indefatigably at his Boston clinic He was his own neurologist, but in the theatre he developed a high degree of teamwork He would operate for 3 to 6 hours without lifting his eyes from the operating field, and in spite of an often distinguished gallery all was complete silence Afterwards, in a tiny dressing-room, he would take tea and toast and jot down notes and drawings Our portrait, taken by one of his assistants, shows him in this act Then, voluminous correspondence, dressings, rounds, and a visit to the laboratory filled in the time Some days he wore his operating uniform until evening The whole clinic responded to the tireless energy of its chief, and as time went on he delegated less rather than more of his own work

Cushing left Boston in 1932, at the height of his power In his last year, he had surpassed anything he had previously achieved, with a mortality of 5 per cent He went to Yale as Sterling professor of neurology and director of studies on the history of medicine From here he issued his last and perhaps greatest book on the meningiomas This, like so much of his work, was written with an assistant, Dr Louise Eisenhardt

Of Cushing as a man, Sir D'Arcy Power writes Cushing had a genius for friendship, saw the best points in everyone and was absolutely innocent of malice, backbiting or evil speaking He was widely cultivated and enjoyed all that was good in literature, and collected books just as did his master and teacher, Sir William Osler More especially did he like the writers on anatomy and surgery of the sixteenth and seventeenth centuries, and his collection of Vesalius' works was unrivalled Full of ideas, he grasped the need for using the talents of every man and introduced the system of visiting surgeons and mutual exchange when he was surgeon in chief at the Peter Bent Brigham Hospital After the war he took temporary charge of some of the surgical wards at St Bartholomew's Hospital, while a member of the Bart's staff took his place at Boston, and the value of such interchanges soon became apparent

A SURGEON'S TRIBUTE

Prof Hugh Cairns writes Harvey Cushing was probably the greatest surgeon since Lister and his own master, Halsted When he began his life's work in 1902 brain surgery was still a hazardous enterprise even in the hands of Horsley and Macewen, and there were not wanting those who said that this ambitious and forceful young man had ruined his career by his choice Thirty years later, before he retired from active surgery, he was removing nearly two hundred brain tumours a year with very low mortality, and his pupils—and the pupils of his pupils—were scattered far and wide throughout the world Cushing was the father of modern brain surgery

The story of his work is to be found in the many papers and monographs that came from his pen in a style that gathered grace as the years rolled by Writing was not one of his natural gifts, but he followed the precept of Benjamin Jowett that he who would write well should each day read from the great books and commit something to writing Cushing's advice was, "Always have something on the stocks," and even at No 46 C C S after a sixteen hour operating day during the Passchendaele battles, in a cold wet tent in the small hours, he would still sit down to write his diary

Before he began to practise brain surgery he had already done distinguished work as a general surgeon and as an experimental physiologist, and one of his first contributions was to introduce into operations on the human brain the meticulous technique and exact observation of the laboratory Like others of his countrymen he saw the importance of teamwork in surgery The same spirit that had gained him his baseball "letter" at Yale perhaps contributed to the skilful use of his assistants at the operating table At a time when it was still the fashion to operate "against the clock" he would take from three to ten hours to remove a brain tumour At first amused, the surgical world was soon convinced by his results For many years he was the only brain surgeon to publish in full his mortality statistics He was a beautiful manipulator, and never better than in his last year of active surgery His showmanship at operation could be superb He never talked or attended in any way to his visitors and demanded of them the same rigorous deportment that he imposed upon himself One of the most memorable displays must have been the occasion during the International Physiological Congress in Boston in 1930 when, before Pavlov and other distinguished physiologists, he removed a temporal tumour from an aphasic boy The operation completed, he removed the drapings and himself applied the dressings, and then demonstrated to an enthralled audience that speech had returned

One of the secrets of Cushing's success was his method of approach to his subject, a model to all surgeons In 1900 he had decided to limit himself to what was at that time considered a narrow field of surgery, and he then proceeded to attack it by all the available methods of science He taught himself the relevant parts of neurology and ophthalmology For years he did his own experimental work, and to the end of his life he worked in the histological laboratory He was never too busy to spend an hour or more by himself at the bedside of some patient in whom the diagnosis was obscure, and he followed the after-history of all his cases with a thoroughness that has not been equalled He would never let a patient die without a tremendous struggle to save him, and afterwards would struggle just as hard to get permission for necropsy He would himself remove the brain, always insisting on the great value to the surgeon of conducting his own post mortem examinations. One of his maxims was that "if you want a thing done well you must do it yourself"

No account of his life would be complete that did not note his conspicuous courage as a surgeon One example of this is from his early days when typhoid fever was rampant in the United States and he and McCrae would go round the wards of Johns Hopkins each night examining the abdomens of all patients in the third week of the disease One such patient showed symptoms of perforation and Cushing operated but found no perforation The next night the pain recurred and again there was a negative exploration On the fourth night there was again sharp onset of pain and Cushing had the courage to open the abdomen for the third time he found a perforation and closed it successfully

There can be few men who have driven themselves (and their assistants) so hard His mind was like a drawn sword Those who knew him before he got peripheral neuritis in France used to tell the rest of us that we could never hope to realise the dynamic qualities of his prime, notwithstanding the unending tension at which he worked during the post war period at the Peter Bent Brigham Hospital The morning began with work on a paper or correspondence, followed by a long operation, each one it seemed, the most important operation he had ever done After a meagre lunch of toast and tea of his own making he would spend what seemed to his assistants an unconscionable time doing drawings, then to his office for consultations and more work on the paper. About 6 p m he would go around his wards, and then home for dinner, often with some friend who shared his love of old medical books. The friend dismissed, usually without realising that he had been given his congé, Cushing would work once more at his paper and go early to bed. This routine was broken only for medical meetings, or for an ill patient, and that sometimes meant a whole night at hospital. For him holidays consisted of visits to foreign clinics or congresses. For all its strenuousness his life was unflurried and reflective. Deaf to all distractions from within and without his own world, he built at Boston an Academy for himself and an increasing number of friends who shared his interests in the Old and the New Medicine.

His character was a complex one and a source of endless discussion among his pupils. In hospital and the faculty there are many stories of "the Chief's" ruthless actions, often tinged with impish humour and sometimes followed by swift but fleeting contrition. On one occasion at a dinner which he gave for an illustrious surgical visitor who failed to materialise, he palmed off his house surgeon in disguise upon the Harvard faculty. His apprentices—for such they were—worshipped him even while still smarting under some particularly crushing criticism, and he always contrived to send them away to their own stumbling beginnings in brain surgery with a feeling of confidence, which he found time to reinforce afterwards with long and encouraging letters and with acts of charming generosity. His final visit to this country was when he was given an honorary degree at Oxford, the last of a dazzling array of honours that sat lightly on him His pupils and friends from many countries in Europe gathered in Oxford for the ceremony. On the Sunday morning he visited the Radcliffe Infirmary, in the footsteps of his hero Osler, and gave a memorable clinic on a variant of basophilism.

Soon after the war he had begun to suffer from intermittent claudication, and eventually had to sink his pride and go to the wards and operating theatre in a wheel chair. In the last years at New Haven his fiery energy was replaced by a mellow equanimity that did not dim his enthusiasms. This gave to the preparation of his monograph on *meningiomas* a leisured tempo unusual in any work of his. At the time of his death from coronary disease he was engaged on a bibliography of Vesalius

A NEUROLOGIST'S TRIBUTE

Dr. George Riddoch writes · It has been said that the history of a country is a history of its great men, an aphorism which is true for medical science as for all aspects of knowledge Such a man may be great because, like Hughlings Jackson, he has discovered fundamental principles whilst another is considered great for his perfection of applied knowledge. Such a man was Harvey Cushing. As Jackson was the founder of modern neurology, Cushing was the founder of modern neuro-surgery. He was, of course, a great technician, based not only on mere manual dexterity but much more on a real knowledge of the reactions of the human subject to disease and of the tissues with which he was dealing. Unlike so many surgeons he was scornful of speed as an index of success, but paid the utmost attention to the avoidance of operative damage, such as hæmorrhage and bruising, and by the training and organisation of his team carefully tending his patients' health throughout his long operations. His method was revolutionary, but was successful, for it was the outcome of a receptive and reflective mind armed with a sound knowledge of physiology and pathology of the nervous system. But his success as a surgeon was as much due to the perfection of his after-care as to the ideal planning of the operation itself. Additional methods of dealing with tumours by radiation were tried and checked on a scientific basis. Further, the interest in his patients never flagged. He followed their course so long as his splendid follow-through system could keep in touch with them.

To say that Cushing was a great technical surgeon in a particularly difficult field of surgery is to indicate only one aspect of his greatness. He was also a first-class clinician, as all his case-records show. In particular, he always appreciated the value of symptoms and in consequence insisted on careful history taking. Like the real clinician that he was he gave full value to his patients' descriptions of their disorders and correlated them with their physical signs. Ever receptive, he noted the unusual and refused to reject as unimportant something he did not understand. His discoveries in clinical neurology, which are at least as great as his development of surgical technique, are due to this open-minded thoroughness and enthusiasm tempered with judgment. Further, he was always sensitive to his patients' mental reactions In fact, an individual for him had to be viewed as a whole and not merely as a piece of disordered mechanism to be dealt with experimentally by a surgeon biased for his craft. His reaction seemed to those who knew him to be firstly as a careful physician and secondly, as a careful surgeon, if surgery was required. He spared no pains in order to arrive at a correct diagnosis of the disturbance of function, the localisation and nature of the lesion, and whether it could be relieved by operation or other means In a word, Cushing was a real craftsman in the art and practice of surgery and in his sphere was a master His thoroughness, breadth of outlook and receptivity were also tempered by intellectual honesty. These qualities have made him an outstanding figure in neurology as well as in neurosurgery. His contributions to neurological literature have on the whole stood and will stand the test of time, not only for their intrinsic value but perhaps even more for their stimulating effect on clinico-pathological research in neurology and neurosurgery. His work has permeated the whole world.

To these gifts—unusual intelligence, receptivity, driving force, enthusiasm, desire for perfection—which he abundantly possessed, must be added others, his charm, his capacity for friendship and, like his friend Osler, who apparently resembled him in many ways. his interest in humanity and his taste for good writing I well remember the impact of his charming personality when I met him first at dinner at Henry Head's house during the last war, and the effect has remained ever since. In his Clinic at the Peter Bent Brigham Hospital he was a delightful host, unsparing in his efforts to demonstrate things of interest. His patients and staff obviously adored him Cushing will continue to live in the true Butlerian sense by the impress of his vivid personality on those who came in contact with him as well as by the enduring quality of his work

---

". . . The idea that specialization necessarily conduces to narrowness of vision is a matter on which I speak with feeling and assurance, for I gave four years of merry youth to the intensive and extensive study of the egg of a worm under the impression, which has in no wise diminished through the years, that the polychætous annelid in the ocean, as truly as 'the flower in the cranneid wall,' is custodian of the eternal mystery."—Prof. ALBERT DAVIS MEAD, *Science*, Sept 15, 1939, p. 245

JOHN DIXON COMRIE

M D, B SC EDIN, F R C P E, F S A

THE death of Dr J D Comrie in Edinburgh on Oct. 1 ends a career of distinction and wide interest The son of a doctor and an Edinburgh graduate in arts and natural sciences as well as in medicine he served during his earlier years in junior appointments both in Edinburgh and in London at the National and Royal Ophthalmic hospitals He studied in Virchow's laboratory and from Berlin went on to Obersteiner in Vienna He joined the staff of Edinburgh Royal Infirmary as assistant physician in 1913, becoming full physician in 1927 In 1909 he was chosen to lecture on the history of medicine, the first appointment of its kind in the university, and he held this post until his death During the last war Comrie was in charge of wards at the 2nd Scottish General Hospital, president of the recruiting medical board of the Royal Scots area, and lieutenant-colonel in charge of the medical division No 73 General Hospital, France, he ended as consulting physician to the forces in North Russia After the war was over he acted as neurological specialist to the Scottish special pensions board He was for long associated with the British Medical Association and there were few of its committees in Scotland on which he did not at one time serve He had a flair for organisation and served on the central council In 1930 at Winnipeg he presided over the section of medical history and sociology In 1935 he became a member of the senatus of Edinburgh University, and in 1939 chairman of the honorary staff of the Royal Infirmary

Elliott & Fry

Dr Comrie wrote widely on medical subjects, maintaining always a catholic outlook on medicine and deprecating excessive specialisation He took responsibility for Black's Medical Dictionary and Black's Medical Advisor, and his book, "Diet in Health and Sickness," became justly popular In 1912 he inaugurated the Edinburgh series of Medical Textbooks, many of which have had a successful career Last year he became editor of the *Edinburgh Medical Journal* But his name is chiefly associated with the study and record of medical history, where he had scope for scholarship and literary ability, his book on the History of Scottish Medicine has remained a classic He also contributed a number of short papers to the Edinburgh Medico Chirurgical Society on the history of the Edinburgh medical school

All this was in addition to his work as consulting physician as physician to the infirmary and as a successful teacher of clinical medicine He was liked by the students for his clear exposition and fundamental bedside teaching, and especially for his kindly spirit and unruffled calm It was the rarest thing for him to be angry, the nearest approach which an observer could see was an undue quietness He had to labour against odds At one time a tuberculous lesion of the right wrist forced him to obtain leave of absence, and while he made an excellent recovery the deformity limited the use of his right hand, and he learned to write with the other During the last six months when his health was failing he continued with his duties until the August vacation, and from his bed he kept in touch with the affairs of the Edinburgh medical world His cheerful presence will be missed by colleagues, juniors, students and patients alike

Dr Comrie married Margaret Christian, eldest daughter of Archibald Hewat, F F A. They had three daughters

CHARLES COTTON

O.B E, M R C S, F R.C P E

Dr Cotton, who died at Canterbury on Sept 30 at the age of 83, was honorary librarian of Christchurch Cathedral and had spent the latter half of his life in recalling the history of Saxon saints buried in the cathedral and of the Grey Friars who guarded it Born at Twickenham in 1856, the son of Hugh Powell Cotton of Torquay, a Treasury official, he was educated at Western Grammar School and King's College School, London, going on to St George's Hospital from which he qualified in 1879 Before settling in Thanet he spent some time at Edinburgh where he took his fellowship and as a ship's surgeon on the African Royal Mail route In Ramsgate he held many hospital appointments and was active in ambulance work, becoming commissioner of the St John brigade for the three counties In the war of 1914–18 he served with 13 auxiliary hospitals Early in his career he wrote a book on the history and antiquities of St Lawrence, Thanet, and writing occupied more and more of his time, his most extensive work being a survey of the properties held in Kent by the Order of St John throughout the ages Dr Cotton married Adelaide, daughter of Major-General R T Leigh, herself a Lady of Grace of the Order of St John They had one son

Medical Diary

ROYAL SOCIETY OF MEDICINE, 1, WIMPOLE STREET, W 1

TUESDAY —2 30 P.M general meeting of fellows

FRIDAY.—2 30 P M, Dr A F Barclay Radiology in the War Emergency Services Major D B McGrigor will also speak

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 26, PORTLAND PLACE, W 1

THURSDAY —4 30 P M Sir Richard Christophers F R S Malaria in War (Presidential address)

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE 28, PORTLAND PLACE, W 1

MONDAY —3 P M., Sir John Orr F R S Dietary Standards

TUESDAY.—3 P M, Sir John Orr Assessment of State of Nutrition

WEDNESDAY —3 P.M, Sir John Orr The Public Health Agricultural and Economic Aspects of the Nutrition Problem (Harben lectures)

TAVISTOCK CLINIC WESTFIELD COLLEGE, KIDDERPORE AVENUE N W 3

MONDAY.—2.30 P M Dr G W B James Disorders most frequently met with—Fatigue, Hysterics Unconscious States etc 3 30 P M Dr H V Dicks Mental Mechanisms

WEDNESDAY.—2 30 P.M., Dr Dicks Fear and Anxiety States 3 30 P M Dr Dicks Conversion Hysteria

FRIDAY —2.30 P M., Dr P I Backus The Use of Drugs in Emergency Cases and Dr J R Rees Psychological Treatment—Persuasion Relaxation Suggestion 3 30 P M Dr J A Hadfield Treatment Hypnoanalysis, Suggestion Abreaction Deep Analysis

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By Medicus, M.P.

The Budget debates have ranged over a very wide field. They have included speculations as to whether the capitalist system can survive a long war by such Conservatives as Robert Boothby and Sir Arnold Wilson And they have included calculations on how much money can be raised by a tax on capital assets at the end of the war. Both points of view cannot be true. Mr. Boothby also stressed a point of especial interest to the professional classes when he said that he wished it had been possible for the Chancellor to have given warning of the progressively increased taxation of individuals. The lawyers, barristers and doctors who have been making substantial incomes in the past financial year and are now brought down to incomes of a half or quarter or a less proportion in this financial year are very hard hit by the 7*s* (and later 7*s.* 6*d.*) scale of income-tax. The Chancellor intervened on this to say· "I am so conscious of cases of the sort that he has quoted . " that instead of his being called on to pay in respect of the thousands earned in past years "he would be entitled to substitute his actual earnings of this year. That is an enormous alleviation". It may be well to remember this debate on Oct 2 (column 1702 in Hansard) for future reference.

* * *

The Budget was called a sumptuary budget, but it is more than that; it is an anchorite's budget and with it we go back not only to old war taxes but for some curious reason to old war tunes and old sentiments The Budget and other emergency measures is, however, only a background against which the changing scene of Europe develops and unfolds. The Prime Minister's story last week was of the meetings in Moscow of Nazis and Communists on Sept 26 and the announcement of the new, the fourth, partition of Poland and the endeavour to saddle Great Britain and France with responsibility for the continuance of the war unless they accepted what Berlin wants to be a fait accompli. The economic agreement between Germany and Russia is more impressive in theory on paper than in fact, for how can Germany supply manufactured goods—especially machinery—to Russia when she cannot supply herself? And how can Russia transport oil from the Baku fields, iron from Siberia and coal from the Donetz to Germany over the long railway stretches and across ravaged Poland? What Russia can give Germany on the Baltic, notably timber, Russia can deliver easily Since last week the situation has developed by Hitler's peace offer to which he was first willing to await an answer in a week, then it became a fortnight, and it may become a longer period if any neutral will lend a hand. But Mussolini, who presumably knows Hitler's mind better than most people, has refused to act up to the present and President Roosevelt shows no eagerness to act as a dictator's messenger.

Hitler's vague fulminations about his "new weapon" which cannot be used against Germany has produced very little effect up to the present. But it is worth recalling that in the last war the Germans were convinced that their blue cross gas, that is the noxious smokes which are particulate clouds, would penetrate British respirators, force their removal and lay thousands of British soldiers open to poisoning by phosgene. Unfortunately for this calculation from the German point of view the British respirator gave a very considerable degree of protection against noxious smokes and the colossal expenditure of the Germans on blue cross shells was largely wasted

During last week's war debate Mr. Lloyd George took a line urging careful consideration of any peace approaches, he managed so to antagonise the House that such Conservatives as Mr. Duff Cooper and such Labourites as Mr. David Grenfell united in condemnation Mr. Lloyd George winced and flushed at Mr Grenfell's (a fellow Welshman) rebuke, but protested loudly to Mr. Duff Cooper that he was "the last man to propose that we should agree to a surrender"

* * *

The peace offensive of Hitler has, however, fallen very flat. The Prime Minister has agreed in a spirit of calm reasonableness to consider any peace proposals on their merits But the protagonists of a Hitler peace in this country have secured little support. The Labour, Liberal and Conservative parties are all of them united in their own ranks against any further Munich truces which are merely the prelude to further slaughter. The only party which refuses this support is the I.L.P. of 3, who represent a part of Glasgow and who are contesting an election. Their voice—and voices of a few partly echoing theirs—was heard in the House, but to no serious effect.

Parliamentary procedure is now getting back to a fairly normal level We have had a division for and against the sugar duty and for and against other points And in the background a new all-party body of members has constituted itself in order to have full, free and non-party discussion on vital matters of the day. The Whips may not like it But with divisions few and far between and with national unity between Labour and Conservative so strongly expressed on all major issues the power of the Whips declines Will new party divisions arise? Probably not in name—names may remain, but the content indicated by that name may be very different in 2 or 3 years' time from what it is now.

FROM THE PRESS GALLERY

Sugar

In the House of Commons on Oct. 4, when the clause of the Finance (No. 2) Bill increasing the tax on sugar was being discussed, Mr. Charles Brown said that it seemed to be adding insult to injury to ask very poor people to pay a penny or twopence a week more when after a lifetime of hard work the social system under which they lived had condemned them to poverty.—Mr. Graham White said that the House would have accepted this further impost cheerfully if they could have been given some hope that something would be done to relieve the burden on old-age pensioners.

Sir Francis Fremantle asked what was the hardship if people had to cut off sugar and find some substitute? In a pamphlet he had received that morning from the Food Education Society it was pointed out that in the days of Queen Elizabeth there was no such thing as sugar as we knew it today. Until the beginning of the last century sugar was not, and could not be, a regular article of the diet of the people and they had to use other materials. Sugar was obviously useful from the point of view of nutrition, but it was not absolutely essential According to the pamphlet to which he had referred honey would be more useful for those who were to perform feats of endurance. Old-age pensioners could buy instead of sugar an equivalent amount of cereals and other articles which were constantly being recommended by the Food Council People were being asked to give up an amenity and not an essential of nutrition —Dr Edith Summerskill said that she had no intention of participating in this debate until she heard her medical colleague putting forward arguments which had no scientific basis whatever It shocked her to hear a medical man advancing such ridiculous arguments Recently the hon member had suggested in the House that sugar caused a certain amount of dental caries Her dentist disagreed with that view and suggested that it was the acid-forming substances in the mouth which caused dental caries What Sir Francis Fremantle should have told the House was that sugar was one of the cheapest foods which was enjoyed by the workers Sugar was a carbohydrate which provided warmth and energy for those people who could not afford the more expensive foods

Captain Crookshank, financial secretary to the Treasury, said that there was no argument about the heaviness of the burden that the Chancellor was laying on the country, and particularly on those who were on lower standards of wages and pensions , but in view of the enormously difficult situation and the fact that the Government must raise these large sums, he hoped that hon members would be content with making their protest

QUESTION TIME

Oct 4-6

Students and Military Service

Sir Charles Cayzer asked the Secretary of State for War whether he could give an official ruling as to the precise age at which young men who were now students or would be taking their examinations in the near future for any of the learned and technical professions would be called up for military service in view of the difficulty of these young men settling down to serious studies if they had no definite idea whether or not they would be able to take their examinations —Mr Ernest Brown replied Students who on Oct 1 had reached the age of 20 and had not reached the age of 22 are liable to be called up for service under the National Service (Armed Forces) Act Those who registered as militiamen last June are likely to be called up during the next six weeks, but it is not anticipated that any of those registering on Oct 21 next will be called up before the middle of November The general postponement of training granted under the Military Training Act to full time students has been cancelled, but individual students can apply to the hardship committees for postponement of their liability to be called up for service on the ground of exceptional hardship In any case when application for postponement has been duly made the man concerned will not be called up while his application is awaiting decision I should add as regards the age limit that it may be anticipated that it will be raised later on by proclamation

Medical Press and Ministry of Information

Sir Francis Fremantle asked the Parliamentary Secretary to the Ministry of Information if he had on his staff persons connected with the technical, and especially the medical press who would be able to prevent distorted or exaggerated reports of disease or other calamity, actual or possible, either in this country or in the theatre of war —Sir Edward Grigg replied No special provision has been made in the staffing of the Ministry to provide against the emergency which my hon friend contemplates The subject is one for my right hon friend the Minister of Health who will now again be directly responsible for all the publicity necessitated by the work of his department

Sir F Fremantle Does my hon friend realise the very great danger of these exaggerated reports and the essential importance of any such suggestions being sifted before they are given out to the public ?—Sir E Grigg Perhaps my hon friend will address that suggestion to the appropriate department

Price of Drugs

Mr David Adams asked the President of the Board of Trade whether he was aware that since the outbreak of war vegetable drugs, essential oils, and medicinal chemicals had doubled and even trebled in price, and that certain of these were being withheld altogether from the market , and if, in view of war and civilian requirements he proposed to control essential supplies of these vital commodities —Mr Oliver Stanley replied I find that there have been substantial increases in the price of a number of goods of this class Inquiries are being actively pursued and discussions have been arranged with representatives of the wholesale and retail drug trades I am not in a position to make any further statement at the moment

Cost of Evacuation

Mr Woods asked the Minister of Health whether he could give an estimate of the following costs the initial cost and the subsequent weekly cost to the Government of the evacuation scheme , the initial costs and the subsequent weekly cost to local authorities in reception areas in respect of expanded education and social services and the weekly cost being met by local authorities in evacuated areas in respect of maintenance and interest charges on capital equipments not now in use —Mr Elliot replied It is estimated that the initial cost to the Government of the evacuation scheme, including the provision for preparatory measures in the supplementary estimates for England and Wales and Scotland of July 14, 1939, and the probable cost of transport will be in the neighbourhood of £2 000,000 The weekly expenditure on billeting is approximately £150 000 No information is available at present upon which to base an estimate of the costs of expanded services in reception areas, or the expenditure in evacuated areas in respect of capital equipments not fully used which may result from the evacuation scheme

Inspection of Evacuees

Sir Charles Cayzer asked whether, in view of the fact that 35 000 more evacuated children were to be sent to the country he would ensure that in every case medical inspection would be carried out before they left town, with the object of avoiding criticisms which had been made against previous evacuees in different districts —Mr Elliot replied Yes Sir I have instructed evacuating local authorities before dispatching any further parties to the reception areas to carry out a medical inspection and, where necessary , the efficient treatment of all children to be included in the parties

Release of Full-time Members of E M S

Sir Francis Fremantle asked whether he would arrange for medical practitioners now engaged for duty in hospitals at present wholly or partially empty to be released for civil practice with liability to immediate recall in case of need —Mr Elliot replied : Letters have been sent to a number of whole time members of the Emergency Medical Service offering to release them for civil practice under certain conditions

Doctors at First-aid Posts

Sir Francis Fremantle asked the Minister if his attention had been drawn to the absence of arrangements for the continuous medical supervision of first-aid posts and for the continued training of the first aid parties attached to such posts , and what action he proposed to take in the matter —Mr Elliot replied Arrangements were made before the outbreak of war whereby a medical officer attached to each first aid post undertook for an annual fee to conduct the collective training of the personnel of the post under the general supervision of the medical officer of health These arrangements are still in operation

Sir F Fremantle : Does my right hon friend realise that while what was required in peace time represented a very small amount of work that what is now required calls for an infinitely greater amount of work and that medical officers cannot possibly attend without further remuneration ?—Mr. Elliot : Later this week I am receiving some doctors who took part in the organisation of first-aid posts and I should prefer not to say anything further on the subject at present.

Mr. Sorensen . May I ask whether the inference to be drawn from this is that these doctors are not willing to help the State unless they are paid for it ?

Medical News

University of Cambridge

At recent examinations the following were successful .

D.M R E

Part II—E. H Allen, R B Boal, A H Brockbank, O C. Levine, H. M Marks, M P. G. O'Brien, S Russell Reynolds, and K. V. Shetty.

St. Andrews University

On Oct. 5 the honorary degree of doctor of laws was conferred upon Dr W G. Campbell, lecturer in *orthodontics in the university*

Royal Faculty of Physicians and Surgeons of Glasgow

At a meeting of the faculty held on Oct 2, with Dr. John Henderson, the president, in the chair, the following were *admitted to the fellowship : Anne Cunningham Aitken*head, M B (Glasgow) ; and David Clowes Williams, M B. (Nottingham)

St. John's Hospital for Diseases of the Skin, London

The outpatient department of this hospital is now open daily from Monday to Friday from 1 30 to 3.30 P M.

Medical Society of Individual Psychology

There will be no meeting of this society this month. Arrangements for further meetings will be circulated to members as soon as possible

British Institute of Radiology

A meeting of this institute will be held at 32, Welbeck Street, London, W.1, on Thursday, Oct 19, at 4 P M , when Major McGrigor, M B , will be installed as president for the new session.

Tavistock Clinic

Six lectures on the diagnosis and treatment of war neuroses will be given by members of the staff of this clinic at Westfield College, 8, Kidderpore Avenue, London, N.W.3, on Oct. 16, 18, and 20. Further particulars may be had from the educational secretary of the clinic The subjects of the lectures will be found in our medical diary.

West End Hospital for Nervous Diseases, London

The outpatient department of this hospital, at 73, Welbeck Street, W 1, is open daily at 2 P.M. except on Saturdays. *The inpatient department* at Regents Park has been reopened to half of its peace-time capacity.

Dr. W. Allen Daley has been recommended by the Emergency Committee to succeed Sir Frederick Menzies as medical officer of health to the London County Council.

Dr. P S Selwyn-Clark, director of medical services at Hong-Kong, has been appointed a member *of the* executive council of the colony.

Vacancies

Bedfordshire County Council —Asst M O H. Maternity and Child Welfare, £500

Brighton, Sussex Eye Hospital, Eastern Road —H S at rate of £150

Brighton, Sussex Maternity and Women's Hosp —Res. H S , £130

Burnley County Borough.—Asst. M O , £850

Coventry, Coventry and Warwickshire Hospital —H S 's and H P.'s to Special Depts , each at rate of £150

Dorset, Milton Abbey Nursing Home —Temp. Res M O.

Dublin Royal City Hospital —Radiotherapist for Deep X-Ray Dept

Glasgow Eye Infirmary —Res H S , £150

Huddersfield County Borough —Assist. M O H £500

London County Council —Coroner for the County of London, £1700.

Manchester, Booth Hall Hospital for Children —Asst M O. at rate of £200.

Nottingham General Hospital —H S for Orthopædic and Fracture Dept , at rate of £150

Reading, Royal Berkshire Hospital —Surg Reg.

Rochdale County Borough —Res. M.O , £350

Sheffield Children's Hospital.—H S , at rate of £100

Stoke-on-Trent, North Staffordshire Royal Infirmary —Hon radiologist

Stoke-on-Trent, North Staffordshire Royal Infirmary —2 H S 's, to Spec Dept., each at rate of £150

Swansea General and Eye Hospital —H P at rate of £150.

Wigan, Royal Albert Edward Infirmary —H S at rate of £150

Wolverhampton, New Cross Hospital and Institution.—Asst (Deputy) M O , £350

Wolverhampton Royal Hospital —Res Anæsthetist at rate of £200.

The Chief Inspector of Factories announces a vacancy for an examining surgeon at Manningtree, Essex

Births, Marriages and Deaths

BIRTHS

Carson —On Oct 7, the wife of Dr D M Carson, of Nottingham—a daughter.

Clark —On Sept 11, at Naunghla Hospital, Burma, to Josephine, wife of Dr. Roger H. P Clark, medical officer, Burmah Oil Company—a son

Kempton —On Oct 3, at Wokingham, the wife of Lieutenant J J. Kempton, R.A M C —a daughter

Klaber —On Oct. 5, at Bishop's Stortford, Herts, the wife of Dr Robert Klaber—a son

Sladen —On Oct 2, at Wheathampstead, Herts, the wife of Dr F. J. Sladen—a daughter.

Toland —On Oct 6, at Hammersmith Hospital, the wife of Dr. C P. K. Toland, of Dover—a son.

MARRIAGES

Keighley—Burch —On Sept 30, in Leeds, Captain Robert Keighley, of Darlington, to Jacqueline Vyvienne Burch, M R.C S , of Clemsfold, Sussex.

Lavelle—Brock —On Oct. 3, at Hampstead, John Lavelle, M B , *of Shrewsbury, to Marjorie Brock, of Hampstead.*

Newth—Davis —On Oct 7, Alfred Arthur Edmund Newth, M B , to Gwendolyn Glendinning Davis, M B., both of Nottingham

Ransome—Abney —On Oct 3, at St Michael's, Chester Square, A. S Ransome, M.B , to Janet Abney

Smyth—Ross —On Oct 6, at Epsom, Edward Smyth, M B., to Ursula Ross

Young—Lewry —On Sept 18, in London, Carmichael Aretas Young, M B., of Adelaide, South Australia, to Marie Lewry, of Botley, Hants

DEATHS

Ellis —On Oct 3, at Crowborough, Henry Augustus Ellis, M.B Dubl , *late assistant physician to* Margaret Street Hospital, aged 78

Scoresby-Jackson —On Sept 29, in Worthing, Margaret Scoresby-Jackson, M D Durh , elder daughter of the late R. E. Scoresby-Jackson, M D

Whitestone —On Oct 7, at Hollingbourne, Augustus Mayberry Whitestone, M B Dubl , aged 82

Appointments

Coates, Harry, M R C S , second assistant medical officer at the Notts County Mental Hospital, Radcliffe-on-Trent.

Lynch, G A. *Cary*, M D Lpool, *D P H , pathologist* and bacteriologist to the Royal Albert Edward Infirmary, Wigan.

Peters, H J , M B., B Hy. Durh , D P.H , medical officer of health for Leigh

Medical Referee under the *Workmen's Compensation Act*, 1925 . Dr. T E Gumpert, for the county-court district of Barnsley (circuit No. 13).

Colonial Medical Service —The following appointments and promotions are announced —

Broderick, G L , M B Camb , medical officer, Uganda ,

Burfield, G A , M.B Camb , medical officer, Northern Rhodesia ,

Crocket, J. A., M B Glasg , medical officer, Gold Coast ,

Hackett, E W R , M B Dubl , medical officer, Hong Kong ;

Heisch, R B , M B Camb , medical officer, Kenya ;

Howells, W. M , M B Glasg , D P H , deputy director of medical services, Gold Coast ,

Lockhart, F R , M B Manc , senior medical officer, Kenya ;

Mullen, W , M.B., medical officer, West Africa ;

Paterson, F S , M B. Edin , D.T M , *senior medical officer*, Sierra Leone ,

Skan, D. A., M.R C S , D T.M , pathologist, Nyasaland,

Tucker, W. A L , L R C P E , medical officer, Uganda ,

Wilson, H T. H , M R C S , medical officer, Tanganyika Territory.

NOTES, COMMENTS AND ABSTRACTS

BOMBS AND RADIUM

A MEMORANDUM on the dangers of the dispersal of radium by air bombardment has been circulated by the National Radium Commission to all known holders of radium Its author, Mr A R Greatbatch, B Sc., of the research department, Woolwich, first examines the effects of a bomb explosion in general terms and then applies them to the particular case of radium He differentiates between the effect of blast and of fragmentation Blast effect is caused by the extraordinarily high speed of the explosion and the succeeding pressure wave In the case of a 500 lb bomb—a size which may be expected to be used by enemy aircraft—any object within a range of 20–25 ft would be subjected to extremely high stresses Large objects, unless exceedingly strong, would be shattered and smaller objects, if suitably placed, might be hurled away with a velocity approaching that of a bullet leaving the muzzle of a rifle Glass containers within this range would undoubtedly be completely dispersed, and unprotected metal radium needles would almost certainly be disrupted and the contents scattered Any body or envelope surrounding a needle would afford it some protection, and it is even conceivable that a needle buried in a human torso would escape destruction under some circumstances Generally speaking, the stronger the envelope the greater the protection, and a reasonably large measure of protection would be given by a suitably designed steel container which unless made of special bullet-resisting steel would require to have walls at least 8 in thick

The danger from fragmentation is of a different nature Here there is a possibility that a radium container may be struck by one of the many thousand bomb fragments which are hurled by the force of the explosion at velocities reaching double or even treble the muzzle velocity of a bullet The danger range may extend to over 100 ft from the bomb, and a direct hit by a fragment within this area would shatter a container unless heavily protected in the manner described

The protective value of the building which houses the radium should not be overlooked nor overrated Modern armour piercing bombs dropped from a height of 10,000 ft or more are capable of penetrating about 5 ft of concrete or 30 ft of earth Thus to attain complete protection from both the blast and fragmentation of a 500-lb H E armour piercing bomb, the radium should be covered by well over 30 ft of earth The sinking of radium to a depth of 50 ft in the ground will therefore make it safe from dispersal in all circumstances, including a direct hit Similar safety might be attained by heavy concrete buildings of the requisite thickness, but the cost would be very high

LEPTOSPIROSIS

THE mud-fever[1] or harvest fever of Germany and Hungary, which is caused by *Leptospira grippotyphosa*, probably carried by field mice, and is identical with the swamp fever or water-fever of Russia, has its counterpart in a fever contracted by workers in the wet rice fields of Vercelli, Italy, where the diagnosis is complicated by the concomitant presence of Weil's disease, due to *L icterohæmorrhagiæ* At Vercelli Prof Prospero Mino[2] isolated from the patients and from the local rats a distinct type of leptospira, which he named *L mitis*, but he has since found that it is identical with *L batavia* first described in the Dutch Indies in 1926 The clinical picture is of two varieties The typical symptoms are initial malaise and headache followed by fever, crural and lumbar myalgia and intense injection of the conjunctiva, the spleen is constantly enlarged and often there are labial herpes and a transitory morbilliform eruption; albuminuria is usually slight, but urobilinuria is almost always found In a few cases a slight subicteric tinge affects the sclerotics, but there is no true jaundice In one case only was the cerebrospinal fluid under slightly increased pressure The other type of illness was gastro-enteric, without splenic enlargement, headache, and myalgia, but with nausea vomiting, epigastric and other abdominal pains, and diarrhœa Of 80 cases of illness among workers in the rice-fields in July–August, 1938, 56 were due to one or other of the two forms of leptospirosis, 26 giving the typical picture and 30 the gastro-enteric type The serum of the great majority of these patients agglutinated only *L batavia*, in fact only 6 agglutinated *L icterohæmorrhagiæ* Of a further 22 cases of leptospirosis seen in the autumn, when the rice was cropped, 5 were due to *L icterohæmorrhagiæ* (2 without jaundice), 16 to *L bataviæ*, and 1 to *L hebdomadis* (the cause of seven-day fever)

The differentiation of *L bataviæ* in Italy rests on the clinical picture and agglutinations No morphological difference has been discovered between these two forms of leptospira Mino points out that many fevers in different parts of the world are assigned to various kinds of leptospira on the results of agglutination, but that the agglutinability both of pathogenic and non-pathogenic forms of leptospira can be altered by experimental passage through animals

PSYCHOLOGY FOR YOUNG PEOPLE

IN these days, when simple biology and physiology are part of the education of every child, it seems equally important for the child to be taught the elements of psychology A knowledge of the processes of the mind may well help to prevent the development of a psycho-neurosis later in life But although there can be little doubt about the advantages of psychological training for the young, many of those who have attempted it have despaired of finding a method simple enough for the child to understand Mr Victor Chamberlain, in "How You Grow Up" (London Gerald Howe 1939 Pp 121 2s 6d), either has too scientific a knowledge of psychology for the task or has been unable to enter into the child mind Whatever may be the cause, he cannot be said to have succeeded in his aim The right book on this subject is worth writing and Mr Chamberlain should try again

SPANISH PSYCHOLOGICAL STUDIES

FURTHER psychological analyses of the political opponents of nationalist Spain have been published by A V Nágera, whose earlier findings in different classes of prisoners were mentioned in these columns (1939, 1, 68) With E M Martinez he studied 50 Spanish women who had been imprisoned for serious offences committed during the "red terror" at Malaga, and the conclusion is reached that the extreme cruelty women may show when social inhibitions are relaxed is to be explained as vengeance against the males who dominate them (*Sem med española* Sept 2, 1939, p 191) More interesting to us in this country, however is the study that Nagera made with E C Gargollo and M A Fernandez Rivera on 41 Englishmen taken prisoners while fighting for the republicans (*Ibid*, Sept 16 p 305) These men, it is said took a much more active part in the actual fighting than did the North American prisoners, to judge by the large number of wounded The results in this group are very different from those in the other groups already reported To begin with 12 of the men were adjudged mentally deficient—a very high proportion—but the remainder had average intelligence, in contrast to the other groups in which intelligence was generally low In their reasons for fighting for the republicans they appeared to be much more idealistic, and their Marxist tendencies did not seem to be related to their economic situation Social and professional failures, however, were common, and atheism and indifference towards religion were more conspicuous There were only 8 alcoholics among them, and 16 of the remaining 33 were teetotallers. There was much less sexual libertinage among the English, and their first experiences with women as a rule dated after the age of twenty This led the investigators to look for evidence of homosexuality, but they found none.

---

[1] *Lancet*, July 29 1939 p 279 and Sept [illegible], 1939 p [illegible]

[2] Mino P *Policlinico* (sez med) Aug 1, 1939 p 410

WAR UNIFORMS FOR NURSES

A NEW war uniform for nurses working under the British Red Cross and Order of St. John is certainly pleasant to look at It consists of a one-piece dress in navy blue gingham, fadeless and shrunk, 60 in. round the hem and 12 in. off the ground. There is a detachable collar of white cambric and detachable cuffs of the same material, and a shoulder cape of the blue gingham. The apron has no cross pieces at the back; instead, the top clips into slots in the front of the dress. This makes it easy to put on. It is long enough to reach the end of the dress hem and is wide enough to cover it all round. Light grey stockings will be worn with black laced shoes which have leather cuban heels. A navy blue felt sailor hat with a ribbon band of red and black with a touch of white is for out of doors, when a double-breasted overcoat in navy serge with an all-round belt will also be worn. The cap to be worn in the wards is of organdie.

One cannot help wondering if this is really the most practical get-up for the war-time nurse. What will be the state of those muslin cuffs after the first rolling-up of the sleeves? The cape will certainly restrict shoulder movements, and old war nurses will remember perpetually tossing the points over the shoulders, and even pinning them there. The cap, though smaller than that used in the last war, is still big enough to dip into the antiseptics on the trolley when the nurse bends down to the bottom shelf.

DOUBLE-DECKER HAND AMBULANCE

THOSE who have the responsibility of arranging for the transport of wounded, whether in our own cities or abroad, will be interested to see the traction carriage which Major Harold Furber is demonstrating at Albion House, 59, New Oxford Street, London, W C.1. Each carriage, he says, can carry two stretcher-cases and can be easily manipulated by one person once it is loaded The steel frame of the carriage looks rather like a workmanlike dinner-trolley. One patient lies as "bottom layer" on a canvas hammock which is lashed on to the frame, while the second patient is placed on a detachable stretcher which is lifted to clip into position and form the top layer. The carriage is balanced on a central axle fitted with two motor-car wheels, and when it is standing a smaller wheel on a rod is let down at each end to steady it. At the end of the last war, it is stated, some 2000 of these carriages were in use. They might prove specially convenient for the handling of air-raid casualties in towns, when a great strain may be thrown on volunteer stretcherbearers, and the carriage could easily be pushed by one man along smooth streets.

RABBITS IN WAR-TIME

To the farmer it must sometimes seem that he shares his land with the rabbits, but in time of war it is essential that the farmer shall get even more than his fair share, and this usually means severe rabbit-repression. Popular methods of catching rabbits for marketing are cruel, while the most effective methods of destroying them in bulk as a pest are humane. The Universities Federation for Animal Welfare (UFAW) has therefore sided with the agricultural bodies who consider the destruction of rabbits is more important than catching them for market, and UFAW sponsored the Prevention of Damage by Rabbits Act, 1939, which lays the onus of keeping down rabbits on the occupiers of land. Captain C. W Hume, the honorary secretary of UFAW, has now compiled a third edition[1] of the federation's "instructions for dealing with rabbits" which contains the text of the new act. Captain Hume considers fumigation of the burrows with cyanide is the most humane method of destruction He states that the carcases of rabbits killed in this way are not poisonous and have been eaten by human beings without harm. As the rabbits have to be dug out it is however not an appropriate method for obtaining rabbits for sale, and if food becomes scarce this may well be a serious disadvantage Other approved methods of destruction are fumigation with motor-car exhaust gas, the long net, dazzle light and dog, ferrets, shooting, catching in enclosures, and humane snares. The need for simultaneous action among neighbours is needed if the destruction is to be really effective.

ALCOHOLISM IN BOSTON, MASS.

DETAILED statistics on alcoholism are rare, and the series of papers from the Boston City Hospital, published in the *New England Journal of Medicine* for July 13, form a valuable contribution to precise knowledge. Of 304,740 patients treated at the hospital during the ten years 1927–37, 10,286 were suffering from alcoholism. Almost twice as many of these were inpatients as outpatients; the average length of stay was one day; and the daily cost was over £1 per patient. This money is not considered to be profitably spent, for the treatment is merely superficial. The ratio of men to women was 18 to 1, and in a series of 344 cases of delirium tremens admitted to the Haymarket Square relief station the sex-ratio was about the same; most of the patients were between thirty and fifty and unmarried. Of the foreign-born group the largest number were born in Ireland; the great majority were unskilled or manual labourers. The condition of 174 of the series was not improved on discharge. The bulk of these patients had medical and surgical complications, of which the commonest were pneumonia and fractures. Nearly all alcoholic hospital patients are injured in some way, chiefly in the head, but of over 16,000 cases only 75 were fatal.

The authors urge that any plan for the treatment of alcoholism which does not give due weight to prevention is fundamentally unsound. The present method of routine care has failed to lower the incidence and cost. The outstanding need in Boston, they say, is not for more facilities for such patients; it is rather for means whereby the alcoholic patient can be studied as an individual, the possibility of his reclamation evaluated, and psychiatric treatment made available when it seems worth while

CARBON DIOXIDE AS A VASODILATOR

THE local injection of carbon-dioxide gas to dilate the vessels in conditions such as Raynaud's disease has often been advocated, and J. C Mom (*Ned Tijdschr Geneesk*, 1939, 83, 3597) now describes the technique he uses and the results in some of his cases A 100 c cm. syringe is filled from a gas-bag with carbon dioxide and connected with an ordinary hypodermic needle; a manometer can be interposed if desired. The gas is injected slowly into the subcutaneous tissues at different points on the arm or leg, 40–50 c cm. being introduced through each puncture A total of 300–400 c.cm. can be given in this way Care must be taken to avoid introducing the needle *into* a vein Mom has not met with any complications except occasional faintness, which he thought to be emotional in origin, during the injections. The introduction of the gas causes only momentary local discomfort and is almost immediately followed by flushing of the skin and a subjective sensation of warmth in the limb. Mom reports rapid and considerable relief in a number of cases, even in one case of Buerger's disease with gangrene of two toes, where the patient was able to return to work as a roadmaker after a course of injections.

---

[1] Obtainable from UFAW, 29, Gordon Square, London, W C 1 Pp 20. 3d

ADDRESSES AND ORIGINAL ARTICLES

THE PROFESSION OF SURGERY*

By VINCENT ZACHARY COPE, M S Lond, F R C S

SURGEON TO ST MARY'S HOSPITAL LONDON

THE advance of the surgical craft has been so rapid id its conquests have been so firmly consolidated that has scarcely been realised that we are face to face ith a new profession, new in outlook and achieve-ent, new in its great economic and social importance he modern profession of surgery bears little or no semblance to the surgery of sixty years ago The ung surgeon of to day performs as a routine opera-ons then undreamt of, and from the economic point view surgery has added health, happiness and orking power to the community of a value beyond timation In the modern sense surgery was impos-ble until the meaning of infection was shown and ie means of preventing infection of a clean wound ere demonstrated

Lister's first important publication on the use of ntiseptics was issued in 1867, while Lawson Tait's npirical but successful aseptic methods began a little ter It took many years for the true meaning of ister's work to be appreciated, and London surgeons ere among the last to accept his teaching It was t the meeting of the Medical Society of London in ctober, 1883, that Lister obtained one of his first ncouragements in the metropolis, for his paper ealing with the operation for fractured patella was eceived with acclamation "Gentlemen," he said, "I hank you must heartily for that cheer, for there was time when such remarks proceeding from me might ave met with a different reception" Yet, during the iscussion one well-known surgeon remarked "c'est agnifique, mais ce n'est pas chirurgie"

EVOLUTION OF THE ART

The period between 1867 and 1881, during which he teaching of Lister was rapidly spreading through Germany, America and finally England, may be egarded as the gestation period of modern surgery Even before 1867 ovarian cysts had, it is true, been uccessfully removed and colostomies had been performed by several surgeons, and in Germany during his period Billroth was carrying out pylorectomies. But before 1881 no appendix had been removed, no perforated ulcer had been successfully sutured, the functions, let alone the surgery, of the thyroid were unknown, the surgery of the spinal cord and brain—apart from depressed fracture—had not begun, and renal surgery had hardly been touched It was about 1881 that surgeons first realised the possibilities opened up by the prevention of wound infection, and the period of 1881-1900—the childhood of modern surgery—saw great advances in all directions. Surgeons explored every type of disease in which they thought relief might be brought by the new surgery The necessary process of trial and error was not always followed by happy results, but the net gain was so obvious and encouraging that by 1900, when I started my medical studies, the main lines of modern surgery had been laid down, though they were by no means standardised During the time between 1900 and 1911 the new surgery showed some of the symptoms of adolescence in its instability and in the limited outlook shown by some of the operations suggested and performed For example, it was a common practice to wash out the peritoneal cavity in cases of peritonitis with a view to mechanically removing the infection, to suture in position various "displaced" viscera which were thought to be causing symptoms, and to treat simple fractures by an insertion of metal plates Meanwhile there was an increasing standardisation of well recognised operations, and new fields were being opened up, but certain important sections of surgery were neglected because they were overshadowed by the new advances in abdominal surgery This was particularly the case in the treatment of wounds and fractures, and in orthopædics generally It was then, however, that the crude surgical view that established bacterial infection of wounds could be got rid of by antiseptic methods was corrected by the important work of Almroth Wright and others, who, by pointing out how bodily (natural) resistance could be increased, helped to limit the extent of surgical interference in bacterial infections

During the last war grim necessity forced surgeons to focus their attention on the treatment of wounds, fractures and deformities, and at least one benefit which came from that experience was the rapid development of plastic and orthopædic surgery The great and unprecedented experience of injuries of the chest during that war also helped to establish the department of thoracic surgery

Since 1918 surgery has reached maturity The surgery of the abdomen, thorax and chest, and central nervous system have been brought to a high level, whilst the treatment of fractures, plastic surgery, and wound surgery have been based on scientific principles No part of the body is now immune from the attack of the surgeon, and no organ or viscus does not at some time or other benefit from his efforts. As with most periods of maturity there are evidences of the development of benevolent conservatism, one might instance the method whereby the wound resulting from the drainage of an acute suppurative focus in bone is allowed to wallow in pus which saturates the plaster casing of the limb, a method salutary but reminiscent of earlier surgery We see also a tendency towards conservatism in the unwillingness of many surgeons to incise a boil or carbuncle, and in the introduction of an injection treatment for hernia

The scope of surgery has widened to such an extent that it has become an important factor in maintaining the health of the nation How important is not generally realised In 1932 over 160 000 operations were performed in the hospitals of London This means that at least half a million operations were done that year in the whole country, and we may conclude that one per cent of the whole population undergoes an operation each year This high proportion shows how closely the profession of surgery is bound up with the national health

PATHS TO THE PROFESSION

The corollary necessarily follows that it is in the highest interest of the nation that there should be an adequate supply of thoroughly trained and experienced surgeons Can it be said that we have such a supply? No doubt hospital surgeons are worked harder than they were if we take the number of operations performed as a criterion If we take my own hospital—St. Mary's—as an example we find that sixty years ago there were ten operating surgeons, while today there are fifteen. But during these sixty years the number of operations has multiplied *more than tenfold.*

---

* Presidential address delivered before the Medical Society of London on Oct 9

Operations at St Mary's Hospital

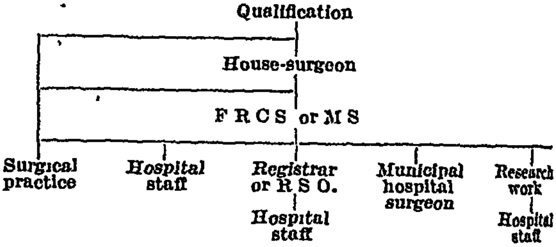
1877	154	1890	880
1878	212	1899	944
1879	290	1906	1637
1880	405	1907	1798
1881	435	1938	3500
1882	613		

These figures show the increase of work which must have fallen to the individual surgeon but *do not prove* a dearth of surgeons. Those who dwell in large cities may be tempted *to think that the profession of surgery* is overcrowded, and judging by the number of well-qualified surgeons who apply *for honorary appointments* at the larger voluntary hospitals there is some *ground for this opinion.* One must remember, however, that most of the talented and ambitious men *naturally gravitate to the large cities.*

One can perhaps form a better opinion by considering the number of surgeons who obtain the higher surgical qualifications. In England and Wales the F.R.C.S. is the best recognised qualification. At the beginning of the modern surgical era, in 1880, there were 1215 holders of this coveted diploma, in 1938 there were 2480. Thus in sixty years *operations have* increased tenfold but the number of surgeons who possess the F.R.C.S. has merely doubled. Admittedly there are other high surgical qualifications, but there is no reason to suppose that their rolls have increased disproportionately to the English Royal College. We must conclude either that the nation was over-supplied with surgeons in 1880, or that it is under-supplied now. That the latter is the *more* likely is supported by the fact that many surgeons in urban districts are attached to two, three or even four hospitals of considerable size, while in more remote parts the surgical needs of the district have sometimes to be met by men who have not undergone the training which modern views would consider essential.

Though major surgery requires a high degree of special knowledge there is, in this country, no legal compulsion for the surgeon to have any postgraduate training or to obtain any additional diploma before he starts to practise surgery. The only guarantees that intervene between the incompetent surgeon and the public are the judgment of election committees of hospitals and of his medical colleagues in practice, and the surgeon's own sense of responsibility. It is a testimony to the good sense of the profession that these guarantees so seldom fail. Failures might be almost entirely avoided if everyone who wished *to* practise major surgery had to undergo a sufficiently long postgraduate training under supervision and pass a special examination. In actual practice this is what, in the majority of cases, does happen, but there is no legitimate reason why there should be any exceptions. Consider the routes followed by *those* who wish to become surgeons.

The usual procedure is to work for a staff appointment at a voluntary hospital. The aspirant after qualification fills a post of house-surgeon and perhaps some other resident post. He then takes the F.R.C.S. or an equivalent surgical qualification, becomes a surgical registrar or resident surgical officer and after that gains a staff appointment. This training ensures good experience under supervision, and, since the election of the staff is usually under the control of the men who have supervised the candidate's work, the staff is likely to be recruited well. Occasionally a man may gain a staff appointment without serving as *registrar* but after doing some special piece of research work. Some men after taking their fellowship enter municipal service where they get excellent experience with a varying amount of supervision and may remain as specialist surgeons or act as consultants, many leave the service after a few years and get on the staffs of hospitals, though not commonly the larger voluntary hospitals.



Alternative routes of the surgeon

Nearly all these different routes ensure experience under the supervision of senior men. But the need *for surgeons* is so great, and the opportunities for gaining experience under supervision so limited, that many men get on the staffs of smaller hospitals with much less training. They may hold one or more *house-appointments,* and then without gaining a higher surgical degree, may join a practice which *enables them* to get on a hospital staff and perform *major* surgery with what most would regard as *inadequate training.* The gaining of technical skill *by these* men must be a more trying and difficult process, *both to themselves* and their patients, than if they were first equipped with supervised postgraduate experience. This statement applies with still greater *force* to those, fortunately rare, instances where men *who have not even filled a house-appointment* go *straight into* practice and attempt major surgery. *The surgeon cannot be standardised any more* than *the general practitioner,* but it should be possible to ensure a greater minimum of *preliminary* knowledge and experience for anyone who wishes to become a surgeon.

THE NEED FOR REFORM

The present rather unsatisfactory *state of* affairs could hardly have been avoided. Fifty years ago no-one dreamt that surgery would become the great and indispensable need that it is today, and one cannot be surprised that the organisation of the profession failed to keep pace with its increase in importance. The same excuse will not be allowed for surgeons of the *future* now that the social importance of the surgeon and his need for special *postgraduate* training are clearly realised.

A similar deficiency in the training of surgeons in the United States has recently led the American *College* of Surgeons to initiate a scheme whereby every candidate for a *fellowship* must undergo a strict and extended apprenticeship. The applicant must have completed three years' service in one or more acceptable hospitals, of which two years shall have been spent in training in surgery, and must in addition submit detailed case-records of 50 major operations performed by himself. The general character of the candidate also has to bear a close scrutiny by a committee. *It is claimed for these new regulations* that "an applicant who can meet all the stipulated requirements is fitted to do actual surgery, whereas the ordinary written and quiz examinations, which are accepted as evidence of eligibility for fellowship in the European colleges of surgeons would prove only his theoretical knowledge of the subject." This criticism is not entirely just, for in most of the higher surgical examinations in Great Britain the candidates must have filled at least one surgical appointment in an approved hospital; nevertheless, it is probably true that none of the higher British surgical qualifications sufficiently insists upon supervised practical experience as an essential preliminary. Some of the higher surgical degrees indeed seem more in the nature of competitive examinations than tests of the candidate's skill and experience.

SOME SPECIAL PROBLEMS

The general level of surgery in this country, however, is high, and the position of the surgeon in the community probably higher than it has ever been. The surgeon has gained the confidence of his fellow citizens to such an extent that he is often expected to do the impossible. The public seem to think that if only the surgeon will do something then good is almost sure to result. Some of the most difficult moments of the conscientious surgeon are those when he must advise against operation in cases where the anxious relatives are clamouring for something to be done.

The life of a surgeon is of absorbing interest. Whether considered from the humanitarian standpoint of serving his fellow creatures or from the scientific aspect of opportunities for research, or even from that less praiseworthy but common desire which mortals have of obtaining benevolent power to control the destinies of others, the life of a surgeon can give great satisfaction. To no man is the destiny of human life so often delivered, to no man's single responsibility does the decision so often rest for action which may make or mar a human life. He has not only to give judgment but must himself carry out the sentence. His power of speedy diagnosis and decisive action in a crisis is of the greatest value, and its exercise brings a sense of self-reliance which has to be curbed lest it develop into intolerance. As the clever physician dramatist has written (probably with his tongue in his cheek):

> "He is surrounded by respectful and even adoring acolytes, and he holds the power of life and death over helpless persons. . . . If he is to avoid madness he must stand aside from the business from time to time and deride himself and his colleagues."

One might be satisfied if each surgeon were content to limit his criticism and derision to his own failings. As a fact there is much less intolerance now than in former times. Most surgeons are moderate in the advocacy of their own methods and eager to gather information and new technical methods from their colleagues. The various surgical clubs and associations are sufficient evidence of this. Yet in some respects the surgeon of today is more isolated than his forerunner of fifty years ago. At the beginning of the modern era it was customary to have regular consultations between all the members of the staff at the large hospitals, and each senior surgeon was actually assisted by his junior at operations. The increase in the amount of work falling to the lot of junior surgeons has caused this practice to fall into disuse. Each member of the staff works on his own and may seldom see his colleagues operate. However there are welcome signs that a different kind of coöperation will soon be general. The advantage of the group system of examination is too great to be neglected; in future we think the physician will be more regularly called in to give his opinion as to the risks of operation and the advisability of performing it, the pathologist will be asked not only to pass an opinion on a section cut from a piece of tissue sent to him without sufficient details as to the clinical features of the case, but will come and consult with the surgeon at the bedside, the radiologist will in like manner take an active part in clinical diagnosis. By these means the diagnosis made by the surgeon will be discussed, challenged or confirmed and all to the benefit of the patient.

REWARDS

The competent surgeon is assured of an honoured place in the community. He does not seek and seldom gains much public recognition, but with him the gaining of the high regard of his fellow surgeons counts for more than social distinction. If opportunity offers he may have the extra happiness which comes from pursuing some useful work of research. In material rewards there is great variation. We have travelled far from the time of Ambroise Paré who wrote of one of his distinguished patients: "He was cured by the grace of God and he made me a handsome present, of such sort that I was well contented with him and he with me, as he has shown ever since."

The young surgeon who follows the orthodox path of preparation for the staff of a voluntary hospital often has many lean years before him. Though well qualified and spending nearly all his time for the benefit of the community he may receive a bare subsistence. Even when elected to the staff of a hospital he may find it hard to make ends meet. This unsatisfactory state of affairs is likely to find its own remedy. The average surgeon ought to and usually will receive adequate pecuniary reward, though, owing to the decentralisation of surgery, it is unlikely, and perhaps undesirable, that the rewards will ever be as great as they were in the opening days of the new era; for the man who enters the surgical profession chiefly to make a fortune has already made a mistake in that he falls short of the ideal which ought to inspire him. The best reward of the surgeon must always be the satisfaction of knowing that interesting, useful and skilful work has been faithfully performed.

ANTITUMORIGENIC ACTION OF TESTOSTERONE

By Prof. Alexander Lipschütz,
Luis Vargas, jun., and O. Ruz

(From the Department of Experimental Medicine, National Health Service of the Republic of Chile, Santiago)

It has been shown that the development of the uterine and extra-uterine fibroids produced experimentally by a prolonged course of injections of the monobenzoate ester of œstradiol can be partly inhibited by the simultaneous injection of progesterone (Lipschütz, Murillo and Vargas 1939). We now describe the control of experimentally produced fibroids by injection of testosterone propionate. Our experiments are still in progress, but since the experimental production and inhibition of fibroids (Lipschütz and Vargas 1939; see also the pioneer work of Nelson, and of Moricard and Cauchoix, Lipschütz and Iglesias) bear directly on the possibility of finding a suitable hormone therapy for uterine fibroids in women (*Lancet* 1939; Todd 1939), we

Expt	Animals	Duration of expt (days)	Treatment		Proportion of œstradiol to testosterone[3]	Fibroids and macroscop fibrosis total mark	Animals with some tumoral or fibrous reaction	Animals with individual tumours of mark not less than 1
			Œstradiol weekly (mg.)	Testosterone weekly (mg.)				
I	10	103	0	1·25	0:1	0	None	None
II	38	47–84	0·24	0	1:0	more than 5	All	34 out of 38
III	8	84–120	0·12	0	1:0	2	All	4 out of 8
IV	2	104	0·24	1·25	1:5	more than 4	All	All } out of 8
V	4	105–111[1]	0·12	1·25	1:10	5·5	All	All
VI	2	104	0·24	1·25[2]–5·0	1:12·6	6·5	All	1
VII	3	108–122	0·12	1·25[2]–5·0	1:22	0·7	2 } out of 7	None } out of 7
VIII	2	137–158[1]	0·12	6·25	1:52	0·5	1	None
IX	2	122–137	0·12	10·0	1:88	0·5	1	None

1 One animal with œstradiol only during the first three weeks and then with both hormones
2 For the first 53 days, then increased
3. For simplification the total quantities of the hormones are compared

communicate our results, though still indefinite because of the rather small number of experiments.

It is known since the work of Zuckerman and Parkes (1936) and of De Jongh et al (1938) that male hormones may counteract the stimulating effect of the follicular hormone on the epithelial and fibrous parts of the prostate. This led us to try testosterone propionate as an antidote against experimentally produced fibroids. Further, the male hormone has already been used in the clinical treatment not only of uterine epithelial proliferation but also of fibroids (Loeser 1938).

EXPERIMENTS AND RESULTS

To 15 castrated female guineapigs, weighing 360–750 g., three subcutaneous injections of 40 μg and in some cases 80 μg. of œstradiol monobenzoate were given weekly. Simultaneously various quantities of testosterone propionate* were injected thrice weekly. The results are given in the accompanying table. The number of animals escaping some macroscopically visible fibrous reaction or development of individual tumours (of mark not less than 1) is nil or insignificant when 80 μg. of œstradiol monobenzoate is injected thrice weekly for seven to twelve weeks (experiment II). The number of animals without individual tumours increases when only 40 μg is given per injection (expt. III), but tumorigenesis is still considerable with this quantity of œstradiol. No change is induced when 5–13 parts of testosterone is injected simultaneously with 1 part of œstradiol (expts IV–VI), but the whole situation seems to change when the proportion of testosterone is raised to more than 22 parts (expts VII–IX). Out of seven animals (expts. VII–IX) there were three without any visible fibrous or tumoral reaction, and not a single animal developed tumours of mark not less than 1. There was only fibrosis or a tumoral seed characteristic of a weak tumoral reaction (Vargas and Lipschutz 1939). The difference between the eight animals receiving 1 part of œstradiol to 5, 10, and 13 parts of testosterone (expts IV–VI) as compared with the seven animals receiving 22–88 parts of testosterone (expts VII–IX) is striking.

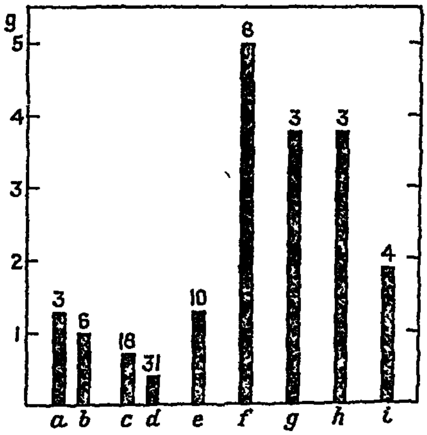


FIG 1—Diagram showing stimulating and inhibiting action of testosterone on the weight of the guineapig's uterus: (*a*) normal adult females treated for five months with olive oil 0·4 c cm injected subcutaneously thrice weekly; (*b*) virginal females more than a year old, (*c*) castrated females treated with injections of olive oil; (*d*) castrated females not treated with olive oil, (*e*)–(*i*) castrated females treated with (*e*) testosterone propionate (expt II in table); (*f*) œstradiol monobenzoate (expt III), (*g*)–(*i*) testosterone and œstradiol simultaneously (expts V, VII, VIII, and IX) in the following proportions of œstradiol to testosterone: (*g*) 1 to 10; (*h*) 1 to 22, and (*i*) 1 to 52–88. The numerals at the tops of the columns indicate the number of guineapigs in each group.

DISCUSSION

There is, however, a weak point in our experiments. In order to avoid using large quantities of testosterone we used 40 μg. of œstradiol per injection instead of 80 μg. This has the disadvantage that some animals receiving 40 μg per injection will not develop any individual tumours of appreciable size (expt III). Thus the objection can be raised that the lack of tumours of appreciable size (of mark not less than 1) in all the animals in expts VII–IX was not due to the inhibiting action of testosterone but rather to an experimental hazard. It is for this reason that we hesitated to report these results of our experiments with testosterone. Dr. J. Luco is now carrying out in this department an experimental investigation on a greater number of animals, so in about three months we hope to have more convincing results.

On the other hand, certain observations of ours speak in a striking manner in favour of an inhibiting action of testosterone against the stimulating action of œstradiol on smooth muscle-fibres and on the uterine mucosa. The stimulating influence of testosterone on the uterus is well known, thanks to the extensive work of Korenchevsky, Dennison, and Hall (Korenchevsky 1939), Courrier and Gros (1938), and others (Varangot 1939). In our experiments we succeeded in maintaining with testosterone propionate the uterine weight of castrated animals on the level of a normal adult virginal female. When œstradiol monobenzoate is given in sufficient quantities, the uterine weight increases enormously. When both hormones are given simultaneously, a considerable decrease is obtained as compared with the benzoic ester of œstradiol alone (Ruz 1939) (see fig 1) *The increase of uterine weight caused by œstradiol is due partly to the growth of the myometrium and partly to epithelial growth, which as is well known, can become enormous under similar experimental conditions* This atypical tumoral growth of the endometrium due to œstradiol is also inhibited when sufficient quantities of testosterone are given (figs 2 and 3)

---

* Supplied by the courtesy of Dr. Carl Miescher, of Messrs Ciba, Basle.

Since testosterone has already been used in the treatment of epithelial uterine growth (Loeser 1938, Foss 1938) and of uterine fibromyoma, apparently with a satisfactory result (Loeser 1938, Turpault 1938), it may be *useful to emphasise that, so far as* the inhibiting action of testosterone is concerned, the conditions in the woman are probably more complicated than in our experiments with exogenous œstradiol In the woman the source of the tumorigenic œstradiol is the ovary, testosterone, given to a patient with epithelial or fibrous growth, will probably act not only on the tumour (as in our experiments) but also on the gonadotrophic complex of the anterior lobe of the pituitary and thus also on the ovary, interfering with the production of œstradiol *Indeed it cannot be* excluded that, even in our experiments, the inhibiting action of testosterone is partly brought about through the anterior lobe, which seems to play a part in the tumoral reaction of our experimental animals It is probably by a sex specific difference in the *endocrine function* of the anterior lobe that the striking *sexual specificity in* their fibrous tumoral reaction may be explained which male and female guinea pigs, even when castrated show when injected with follicular hormone (Koref Lipschütz, and Vargas 1939, Jedlicky, Lipschütz, and Vargas 1939, Chaume)

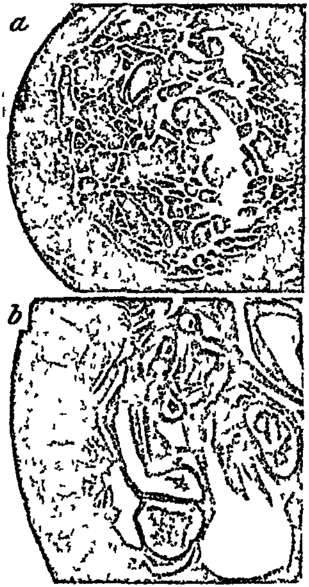


FIG 2—Sections of uteri of two castrated female guineapigs treated with œstradiol monobenzoate 40 μg injected subcutaneously thrice weekly for 122 and 102 days (expt 111) *showing (a) polypous development* of uterine mucosa and *(b)* cystic development of uterine glands (× 12)

SUMMARY

When the monobenzoate ester of œstradiol was given to castrated guineapigs *simultaneously* with testosterone propionate up to the *proportion of 1 : 13* uterine and extra uterine fibroids developed *in the usual* manner as with similar quantities of the ester of œstradiol alone

When the proportion of œstradiol to testosterone was raised to 1 : 22 or more, no fibroids *of appreciable* size developed only *some fibrous reaction or tumoral* seed being produced, which seems to be characteristic of a diminished tumoral sensibility

The objection can be raised that the individual variations so far as the tumoral reaction is concerned are so great that the apparent inhibiting action of testosterone may be due to an experimental hazard, but the inhibiting action of testosterone against the stimulating action of œstradiol is revealed also by the following experimental findings (1) though the uterine weight is maintained by testosterone alone in a castrated animal on a normal level *the male hormone will suppress the increase of the uterine weight due to œstradiol* especially when the hormones are given in a proportion *of more than 1 : 22*, and (2) *the atypical growth of the* endometrium and its glands due to œstradiol is partly inhibited by testosterone

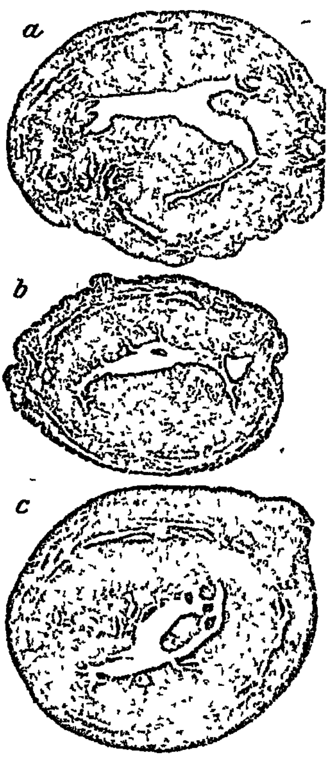


FIG 3—Sections of uteri of three castrated female guineapigs treated simultaneously with three subcutaneous injections of œstradiol monobenzoate 10 μg and one injection of *(a)* 6·3 mg and *(b and c)* 10 mg of testosterone propionate weekly for 158, 122 and 137 days respectively Uterine weight 2, 1·8, and 1·7 g respectively Note inhibition by testosterone of stimulant action of œstradiol on the uterine mucosa (× 10)

References at foot of next page

PATHOGENIC STAPHYLOCOCCI

THEIR INCIDENCE IN THE NOSE AND ON THE SKIN

BY E H. GILLESPIE, M B. Edin.
ASSISTANT IN THE DEPARTMENT OF BACTERIOLOGY AT THE UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, LONDON

E A. DEVENISH, M S. Lond., F R C S
FIRST ASSISTANT TO THE SURGICAL UNIT AT THE HOSPITAL, AND

S T. COWAN, M D., Dp Bact Manc
LECTURER IN BACTERIOLOGY IN THE UNIVERSITY OF MANCHESTER

DURING an investigation of an outbreak of septic infections in operation wounds Devenish and Miles (1939) found that three of four surgeons tested were nasal carriers of *Staphylococcus aureus* One of these three was a persistent skin carrier of a strain of *Staph aureus* identical with the nasal strain The *Staph aureus* carrier state in the nose is relatively common It is obviously of surgical importance to know the incidence of the *Staph aureus* carrier state in the skin, and its connexion with infestation of the nose Hart (1937) found that the nasal-carrier state in an operating-theatre staff was intermittent. Hallman (1937) and McFarlan (1938) determined the nasal-carrier-rate of potential pathogenic staphylococci in students and in hospital patients. McFarlan found no direct relationship between staphylococcal nasal carriage and staphylococcal infections.

There appears to be no record of any survey of the incidence of staphylococci both in the nose and on the skin in which the cocci were identified as potentially pathogenic. We have determined the nasal- and skin-carrier-rates in medical students and compared them with the incidence of nasal and skin infections, and we have attempted to show the relation between infestation of the nose and of the skin Two surveys were made In the first, 159 students were swabbed; in the second, 40 students selected from the first group were swabbed again, and stringent tests were made for the skin-carrier state under conditions comparable with those in an operation theatre.

First Survey

During the eight weeks from Oct 19 to Dec. 16, 1938, nasal and skin swabs were taken from 159 healthy medical students and recently qualified assistants, whose ages ranged from 19 to 30 Swabs were taken from 66 per cent of the students of University College Hospital; the volunteers were representative of the total student population, though first-year students predominated slightly During the survey there was no noticeable outbreak of colds or influenza in the students or in the general population The past history with regard to acute and chronic infections of the skin, nasal cavities, and nasal sinuses was obtained from each volunteer

Both nostrils were sampled with one cotton-wool swab. For the skin sampling an area about 2 in. in diameter on the back of each wrist was rubbed about twenty times with a swab moistened in broth, a separate swab being used for each wrist. Swabs were cultured on Fildes's peptic-digest-blood-agar plates, incubated at 37° C. for twenty-four hours and then in moderate daylight at room temperature for forty-eight hours to facilitate production of pigment

Likely colonies of golden staphylococci and, in their absence, white staphylococci were examined as regards their morphology, fermentation of mannitol, and production of pigment, coagulase, and α-hæmolysin. The production of pigment by all the cocci isolated was determined by a simultaneous seeding on to segments of blood-agar plates, which were incubated for twenty-four hours at 37° C. and examined after standing three and seven days in moderate daylight at 18° C.

The methods for testing the production of α-hæmolysin and coagulase closely resembled those used by McFarlan (1938) Subcultures in 0 5 c cm. nutrient broth (in 3 by $\frac{5}{16}$ in tubes) were incubated at 37° C for forty-eight hours in air containing 30 per cent of carbon dioxide. The cultures were centrifuged, and 0 1 c cm of the supernatant fluid was tested for α-hæmolysin against a 2 per cent suspension of rabbit red corpuscles. A control tube containing one unit of staphylococcal α-antitoxin was set up for each strain. Readings were made after an hour at 37° C and eighteen hours on the bench. To the remaining 0 3 c cm of culture an equal quantity of a 50 per cent solution of citrated human plasma in saline was added. The test was read after three hours at 37° C and after eighteen hours at 18° C.

Since differences in the specimens of plasma may cause variations in the coagulase test (McFarlan 1938), plasma from two persons only was used exclusively throughout the investigation. While testing strains isolated in the second survey, it was found that either incubation in air containing 30 per cent. of carbon dioxide or growth in the 3 by $\frac{5}{16}$ in tubes in air inhibited the production of coagulase Tests of media and plasma did not reveal any reason for the sudden appearance of this inhibition by carbon dioxide. A similar observation has recently been made by Di-Rocco and Fulton (1939). For coagulase tests in the second survey a large loopful of a 24-hour blood-agar plate culture was added to 0 2 c cm of plasma, shaken well, and the result read after incubation as above.

Strains of staphylococci with the following characters were labelled "potentially pathogenic": monomorphic gram-positive cocci producing α-hæmolysin and human-plasma coagulase According to Cruickshank (1937) and Chapman et al (1938) coagulase is the simplest reliable test for potential pathogenicity Since pigmentation is by itself of limited value, Bigger (1937) and Cowan (1938) suggested the name of "*Staph pyogenes*" for all potentially pathogenic staphylococci The name has been adopted in this paper

All typing was performed by one of us (S. T. C.) with the slide-agglutination method (Cowan 1939), dividing the strains into the three main types I, II, and III, and into six additional subtypes according to the reactions of the strains with absorbed sera All strains of *Staph. pyogenes* isolated from any one individual at one or both surveys were typed and compared at the same time.

PROFESSOR LIPSCHÜTZ AND OTHERS REFERENCES

Chaume, J , personal communication
Courrier, R , and Gross, G (1938) *C R Soc Biol Paris*, 127, 921
Foss, G. L (1938) *Lancet*, 1, 992.
Jedlicky, A , Lipschütz, A., and Vargas, L , jun (1939) *C R Soc Biol Paris*, 130, 1466
Jongh, S E de, Kok, J , and Van der Woerd, L A. (1938) *Arch intern Pharm Thér* 58, 310
Koref, O , Lipschutz, A , and Vargas, L , jun (1939) *C R. Soc Biol Paris*, 130, 303.
Korenchevsky, V (1939) *Ergebn Vitamin-Hormonforsch.* 2, 418.
Lancet (1939) 1, 1939
Lipschütz, A , Murillo, R , and Vargas, L , jun (1939) *Ibid*, Aug 19, p. 420.
— and Vargas, L , jun (1939) *Ibid*, 1, 1313
Loeser, A A (1938) *Ibid*, 1, 373
Ruz, O (1939) *Publ Med exp Chile*, in press
Todd, T. F (1939) *Lancet*, 1, 1402
Turppault, M. (1938) *C R Soc franç Gynéc* 8, 372 (cited in *Rev. Med aliment* (1939) 3, 304
Varangot, J. (1939) *Ann Endocrinol , Paris*, 1, 55.
Vargas, L , jun , and Lipschütz, A (1939) *C R Soc Biol Paris*, 129, 810
Zuckerman, S (1936) *Proc. R. Soc. Med* 29, 1557.
— and Parkes, A. S. (1936) *Lancet*, 1, 242

TABLE I—BIOLOGICAL PROPERTIES OF STAPHYLOCOCCI ISOLATED FROM 159 STUDENTS

Strain	No	α Hæmolysin		Coagulase		Mannitol		*Staph pyogenes*
		+	−	+	−	+	−	
Golden colony	130	112	18	112	18	114	16	112
White "	102	0	102	0	102	60	42	0
Yellow "	78	0	78	0	78	51	27	0
α Hæmolysin positive	112			112	0	110	2	112
α Hæmolysin negative	198			0	198	115	83	0
Coagulase positive	112					110	2	112
Coagulase negative	198					115	83	0

RESULTS

Properties of staphylococci isolated—Of over 400 strains of gram positive cocci isolated and tested 310 were staphylococci, their biological properties are shown in table I The 112 strains identified as potentially pathogenic staphylococci (*Staph pyogenes*) all produced a gold pigment Many strains provisionally labelled "golden" on first isolation were readily assigned to the "yellow" class when compared with other strains in the simultaneous re test of production of pigment Of the 112 strains only 2 did not ferment mannitol, and only 4 of the 18 non pathogenic *aureus* strains fermented mannitol

TABLE II—INCIDENCE OF *Staph pyogenes* CARRIER STATES

Group	Site	No	Percentage of total ± S E
A	Nose only	49	30 8 ± 3 6
B	Nose and skin	20	12 6 ± 2 6
C	Skin only	11	6 9 ± 2 0
D	Negative	79	49 7 ± 4 0

There was a complete correlation between the production of α hæmolysin and that of coagulase Of the 18 "non pathogenic" golden strains only 1 came from a nasal cavity

Carrier incidence of Staph pyogenes—Of the 159 nasal swabs 69 were positive a nasal carrier rate of 43 4 per cent There were 31 (19 5 per cent) skin carriers (right or left wrists, or both) The total population may be conveniently divided into four groups as in table II Group A are nasal carriers B double carriers, C skin carriers, and D non-carriers It will be seen that 50 per cent are carriers of *Staph pyogenes* 30 per cent in the nose only, 13 per cent in the nose and on the skin—i e, double carriers—and only 7 per cent on the skin alone

Nasal and skin carriage—Table III shows that the skin carrier rate is associated with the nasal carrier rate The percentages of skin carriers in nasal carriers and in nasal non carriers differs by 16 8 ± 6 4 per cent The number of colonies of *Staph pyogenes* developing from the swabs of the 69 nasal carriers was large (more than fifty) in all except 10 instances In these 10 the number of colonies was less than six If we transfer these 10 to the nasal non-carrier group on the grounds that a feebly positive culture indicates no more than a transient nasal infestation with *Staph pyogenes*, the association of the skin carrier state with heavily infected noses is striking, the skin-carrier rate in the nose positive group is in this case 22 9 ± 6 5 per cent greater than that in the nose negative group, and in the X^2 test P falls to 0 0016 But even without this refinement of the data the association between nasal and skin carrier states is strong It is further strengthened by the results of typing the strains from the 20 double carriers in group B 18 were carrying the same serological type in the nose and on the skin Moreover, in the second survey, 7 more double carriers were found In only 4 of the 27 examined was the nasal strain serologically different from the skin strain One colony only from each site was tested serologically In one case a single colony proved to be a mixture of two types, it is possible that, had more colonies been tested, infestation with more than one type might have been detected with greater frequency, and the correspondence of types in the 27 double carriers might have been more complete

TABLE III—ASSOCIATION OF NASAL AND SKIN CARRIER STATES

Nasal carriers	No	Skin carriers		
		+	−	Positive (per cent)
+	69	20	49	29 0
−	90	11	79	12 2
Total	159	31	128	19 5

$n = 1$ $\chi^2 = 5$ 97   P = 0 016 (see Hill 1937)

The carrier state and length of sojourn in hospital—The data, not tabulated here, showed that there was no relation between the carrier rates and the length of the students' sojourn in hospital Each half yearly group contained about the same proportion of carriers Nor was there any association with the age or sex of the student

The nasal carrier state and history of chronic nasal disease—Of the population sampled 39 gave a history of chronic nasal disease in the form of discharge chronic catarrh, or sinusitis 25 of these were nasal carriers of *Staph pyogenes* (table IV) The percentage difference between the incidence of nasal disease in nasal carriers and in the remainder of the students is 20 7 ± 6 0 suggesting that there is an association between the two conditions It must be emphasised that the association is between the nasal carrier state and a history of nasal disease, no rhinological examinations were made Analysis of the data revealed no association between nasal carriage and chronic or repeated "colds"

TABLE IV—ASSOCIATION OF NASAL CARRIER STATE WITH HISTORY OF CHRONIC NASAL DISEASE

Nasal carriage	No	Chronic nasal disease		
		+	−	Positive (per cent)
+	69	25	44	36 2
−	90	14	76	15 5
Total	159	39	120	24 5

$n = 1$ χ^2 7 93   P = 0 005

Nasal and skin carrier states and skin infections—Several volunteers had a history of superficial skin infections such as boils or pustules Table V shows their distribution among the various carrier groups.

The positive carriers show a slightly higher percentage of skin infections, but the difference is not statistically significant If the skin infections, boils and pustules, are considered separately, again there is no statistical evidence of association.

TABLE V—ASSOCIATION OF NOSE- AND SKIN-CARRIER STATES WITH HISTORY OF SKIN INFECTIONS

Group	Site of carriage	No	History of skin infections			Percentage difference ± S E difference
			+	–	Positive (per cent)	
A	Nose only	49	21	28	42 8 ± 7 9	7 2 ±13 2
B	Nose + skin	20	10	10	50 0 ±11 2	
C	Skin only	11	6	5	54 5 ±15 0	17 8 ±15·7
D	Negative	79	29	50	36 7 ± 5 4	
A+B	Total nose	69	31	38	45 0 ± 5 2	6 1 ± ·7 9
C+D	Total non-nose	90	35	55	38 9 ± 5 1	
B+C	Total skin	31	16	15	51 6 ± 9 0	12 6 ± 9 7
A+D	Total non-skin	128	50	78	39 0 ± 4 3	
—	Total ..	159	66	93	41 5 ± 3 9	—

Second Survey

The second survey, made in the latter half of February, 1939, was designed to test the constancy of the nasal- and skin-carrier states and their association and to compare the incidence of *Staph pyogenes* on the skin, determined by superficial swabbing, with that in the deeper parts of the skin. Ten students were selected at random from each of the four groups A, B, C, D (table II) and were swabbed as before They also washed up for eight minutes as for an operation, applying hot water and soap and a brush for the nails, rinsed the hands in a 70 per cent. solution of spirit, and powdered the hands, when dry, with a minimum of sterile French chalk After putting on dry sterile rubber gloves each student was exposed to a humid atmosphere at 80° F. Sweating was induced by the immersion of the gloved hands in a hot-water bath at a temperature of 40°–43° C. As soon as the student showed perspiration on the forehead and inside the cuffs of the gloves (usually after five to thirty-five minutes), 0 5 c cm. of broth was pipetted into each glove and well massaged into the hands The gloves were then peeled off and their inside surfaces pressed on to Fildes's agar plates, which were incubated and examined for *Staph. pyogenes.*

TABLE VI—COMPARISON OF CARRIER STATES IN 40 STUDENTS

First survey		No	Second survey			
Group	Site		Nose +, skin +	Nose+	Skin +	Both negative
A	Nose +	10	4 (1 glove +)	5	0	1
B	Nose +, skin +	10	6 (2 gloves +)	2	0	2
C	Skin +	10	1 (0 gloves +)	2	2	5
D	Both negative	10	2 (2 gloves +)	1	0	7
—	Total .	40	13 (5 gloves +)	10	2	15

RESULTS

Constancy of the staphylococcal-carrier state —Table VI shows how the 40 students fell into the different groups at the second swabbing: 5, 6, 2, and 7 students respectively remained in their original groups A, B, C, and D; and 2 originally in the negative group D had become double carriers and 1 a nasal carrier, of the skin carriers (group C) 2 became nasal carriers and 1 a double carrier; only 2 remained in group C Table VII *indicates the relative constancy* of nasal carriage on repeated swabbing: of 20 nasal carriers 17 remained nasal carriers, and in 14 of these the infesting staphylococcus was of the same serological type at both surveys As before, it is possible that the three discrepant strains in each pair were only partly representative of the nasal staphylococci, for only one colony of *Staph. pyogenes* was examined serologically in each case. The high proportion of students that remained carriers of the same strain suggests that nasal carriage is relatively constant and chronic.

Relation of glove infection to the staphylococcal carrier state —The glove test distinguishes those who carry *Staph pyogenes* superficially enough for its complete removal by surgical scrubbing-up from those in whose skin the infestation is deep. There were 15 superficial skin carriers among the 40 students tested, but of these only 5 were deep carriers by the glove test There were no deep carriers in the group negative by the superficial skin test (table VI) Moreover, all 5 deep carriers were in the double-carrier group, as determined by the ordinary swabbing test Deep skin infestation appears to depend on the double-carrier state, and the dependence is strengthened by the serological examination of the strains. In all 5 the glove strains were identical with the superficial skin strains, and in 4 of the 5 the nasal strain belonged to the same serological type The case in which the nasal strain differed from the glove and skin strain was peculiar The volunteer was a double carrier at both surveys. The nasal strains of the two surveys were serologically identical, as were *the skin strains; and it appears that we were* dealing with a chronic nasal carrier of one strain and a chronic skin carrier of another strain. The source of the skin strain appeared to be a discharging chronic mastoid sinus of eight years' standing, from which *a serologically identical strain was isolated.*

TABLE VII—CONSTANCY OF THE NASAL-CARRIER STATE

First sampling	No	Second sampling		
		+	–	Percentage unchanged
+	20	17	3	85 ± 8 0
–	20	6	14	70 ±10·2

Discussion

Staph pyogenes was carried on the skin of the wrists by 19 per cent. of 159 hospital students The relevance of this fact to the spread of surgical staphylococcal infection depends on the constancy of the carrier *state Transient infestation* cannot be excluded, but the areas sampled are not those specially exposed to contamination from external sources Serological tests identify six subtypes of *Staph pyogenes* Had the skin strains been of purely *fortuitous origin, it is highly unlikely* that correspondence between nose and skin strains would have been demonstrable in 23 of 27 double carriers Evidence that the skin-carrier state is not superficial lies in the fact that in 15 skin carriers tested the hands *of* 5 were *so deeply infested* that *Staph* *pyogenes* survived scrubbing up and spirit disinfection and were subsequently sweated in considerable numbers into sterile operation gloves.

There is an undoubted association of the skin-carrier state with the nasal carrier state; the latter appears to be relatively constant, 17 out of 20 remaining nasal carriers three months later. The identity of serological types in most of the double carriers suggests that the one depends on the other. The nose is a likely source of the cocci. There is no other obvious reservoir except staphylococcal skin lesions, and there was no discoverable relation between the skin carrier state and history of skin infection.

The 5 deep carriers were all double carriers by the superficial swabbing tests. There were 13 double carriers so tested, and, if we assume that 5 of every 13 double carriers are deep carriers, and that the 12.6 per cent. double carrier rate in the first survey is representative, we may estimate the incidence of the deep-carrier state on the hands as being of the order of 5 per cent. of the total student population tested. From the point of view of surgical risk this is probably a conservative estimate, for the gloves were tested immediately sweating began, usually after five to thirty-five minutes; had the sweating been prolonged for periods as long as the average operation, the incidence of deep carriers might have been higher.

It appears, therefore, that the persistent skin-carrier state in a surgeon reported by Devenish and Miles (1939) was not an isolated phenomenon but one which is relatively common. If it proves to depend on the nasal carrier state, we may presume that the skin carrier state is not uncommon, for in two recorded surveys (Hallman 1937, McFarlan 1938) the nasal carrier rate was of the same order as the 43 per cent. found in this investigation.

Conclusions

From a test of 150 students for potentially pathogenic *Staph. pyogenes*, in which serological typing was used to establish the relationship between various strains, the following conclusions may be drawn.

(1) The nasal carrier rate was 43.4 per cent. and the skin carrier rate 19.5 per cent. The double carrier rate was 12.6 per cent.

(2) The skin carrier state depended on the nasal carrier state, which in turn was associated with a history of chronic nasal disease.

(3) The infestation of the skin of the hands may be relatively deep seated, for 5 of 13 double carriers excreted *Staph. pyogenes* into rubber gloves after routine surgical disinfection of the hands.

We wish to express our thanks to Dr. R. A. O'Brien, of the Wellcome physiological research laboratories, for a supply of staphylococcal toxin and antitoxin; to the students of University College Hospital medical school for their coöperation; and to Prof. A. A. Miles for his advice.

REFERENCES

Bigger, J. W. (1937) *Brit. med. J.* 2, 837.
Chapman, G. H., Berens, C., Nilson, E. L., and Curcio, L. G. (1938) *J. Bact.* 35, 311.
Cowan, S. T. (1938) *J. Path. Bact.* 46, 31.
(1939) *Ibid*, 48, 169.
Cruickshank, R. (1937) *Ibid* 45, 295.
Devenish, E. A., and Miles, A. A. (1939) *Lancet*, 1, 1088.
Di Rocco, F. W., and Fulton, M. (1939) *J. Bact.* 37, 657.
Hallman, F. A. (1937) *Proc. Soc. exp. Biol., N.Y.* 36, 789.
Hart, D. (1937) Arch. Surg. 34, 874.
Hill, A. B. (1937) Principles of Medical Statistics, London.
McFarlan, A. M. (1938) *Brit. med. J.* 2, 939.

PANCREATIC LITHIASIS

By W. F. Brook, F.R.C.S.

SURGEON TO THE CARMARTHEN COUNTY INFIRMARY AND PORT TALBOT GENERAL HOSPITAL, AND CONSULTING SURGEON TO THE SWANSEA GENERAL HOSPITAL

ALTHOUGH less than 140 cases of pancreatic lithiasis are known to have been published since the condition was first described by de Graaf two hundred and seventy years ago, the condition is so grave that it should be borne in mind in making a differential diagnosis in the region of the upper abdomen. Its diagnosis is notoriously difficult; but, *if it is recognised* sufficiently early, surgical treatment in appropriate cases is eminently satisfactory, whereas failure to diagnose it usually leads to disaster. In fact the disease is one in which treatment has outstripped diagnosis. Hence the reporting of cases as they occur becomes almost a moral obligation. Moreover the progressively increasing numbers reported year by year indicates that the disease is by no means so rare as is supposed.*

DIAGNOSIS

The following are the reasons for the difficulty in diagnosis.

(1) There is no pathognomonic symptom or sign of pancreas stones except their discovery in the stools, a rare event owing to their friability. Such symptoms as appear are those of chronic pancreatitis, which is always present either as cause or effect, and/or of other associated conditions, such as abscess, cholecystitis, and gall-stones.

(2) The symptoms of pancreatitis, though it is apparently very common, are so vague that it is seldom diagnosed. Such digestive disturbances as it causes are generally indistinguishable from those due to affections of neighbouring organs, which, moreover, frequently accompany it.

The only characteristic features are evidence of pancreatic insufficiency in fluid withdrawn from the duodenum and the finding of undigested fat and muscle fibre in the stools. So-called pancreatic diarrhœa and extreme asthenia, out of proportion to the severity of other symptoms, with loss of flesh, are significant of destruction of pancreatic tissue and, when present, should help diagnosis. The stools are often bulky, grumous, and foul smelling.

Pain, the most constant symptom of pancreatitis with or without calculus, is liable to be confused with that caused by gastric or duodenal ulcer, gall-stones or renal calculi, all of which may be associated with it. The character of the pain is as variable as its location: dull, acute or colicky (actual colic caused by pancreas stones being indistinguishable from that caused by gall-stones); continuous or intermittent; coming on at intervals after food or having no relation to it, often with intervals of complete freedom lasting months or years. Its situation may be epigastric, umbilical, right or left hypochondriac, or lumbar, radiating in different directions—e.g., the back, either shoulder, scapula, loin, and iliac fossa—depending, Mayo (1936) suggests, on the position of the inflamed area in the pancreas.

Although more than thirty years ago Mayo Robson (1901) recognised the value of radiography in the diagnosis of pancreatic stones owing to their usually high calcium content, Steger (1928) could quote only one case in which up to 1926 a preoperative diagnosis had been made by their means. Robson was prob ably speaking of comparatively large stones blocking the ducts or occupying abscess cavities, for he lays it down that "as soon as pancreatic stones are diagnosed they should be removed, as destruction of the pancreas is otherwise certain," a dictum which cannot apply to most cases, including that reported below. In Robson's day the opaque meal was unknown, and paradoxically this great advance in diagnostic radiography in the abdomen seems to have contributed more than anything else to the delay in the realisation of his expectation—e g , in Hartman's (1925) third case of removal of pancreas stones the shadow thrown by a stone 2 5 cm in diameter was interpreted as a duodenal ulcer, which proved to be non-existent, and in his fourth case the meal satisfactorily demonstrated duodenal ulcer but did not show the stone In other words, the shadow of the meal had masked that of the stone in the one case partially and in the other completely

---

* In the more easily obtainable American and continental journals I have found 24 cases recorded in the period 1934-37.

There are other reasons of failure to diagnose calculi by radiography even at its present stage of development The stones may be too minute to cast a shadow Variation in calcium content, blurring of outline caused by aortic pulsation, and differentiation of their shadows from those cast by other objects, such as calcified glands, aortic calcareous patches, and biliary or even renal calculi contribute to this failure. Reliance on radioscopy alone has been another cause, but the chief cause, where fairly modern apparatus has been used, is probably the opaque meal It has for some years been my own practice when seeking X-ray assistance in the diagnosis of abdominal cases, especially upper, to ask for a plain film to be taken *before* the meal is given Much time may be saved and help given by this precaution, whether the findings are positive or negative The annoying uncertainty is avoided as to whether or not a suspicious shadow is that of a lurking fragment of the meal, and at a subsequent operation, when obstructive jaundice may have been traced to a hard mass in the head of the pancreas, a negative film will rule out calculus and enable the surgeon at once to proceed accordingly.

Korte's remark made many years ago, to the effect that disease of the pancreas would be far commoner if the doctor only remembered that his patient had a pancreas, still applies, especially as regards calculus, and not only to the clinician but also to the radiologist and the surgeon That this is so is shown by the increasing frequency with which the same individual has more than one case to his credit either successfully diagnosed or removed by operation

In the Mayo Clinic it has been the custom for many years to explore the pancreas in all upper abdominal operations Even so, however, without radiography stones may be missed Owing to the consistence of the pancreas it may be impossible to detect them by palpation unless they are multiple and cause crepitation

EFFECTS ON THE PANCREAS

Although calculi may lie quiescent apparently indefinitely, without causing symptoms, they are more likely to cause more or less extensive destruction of the pancreas, leading finally to fatty or fibroid degeneration or to the formation of cysts or abscesses Abscesses may be multiple, or the pancreas may be converted into a bag of pus, even communicating by a fistulous opening with the stomach or the duodenum. The acinous tissue perishes first, the islands of Langerhans holding out almost to the end ; hence glycosuria, when present, is a late symptom, while steatorrhœa and creatorrhœa may develop at an earlier stage Even so, however, glycosuria is not of itself necessarily a bar to operation A large area of the gland must be affected before obvious failure of function results Indeed its complete destruction is not necessarily incompatible with continuance of life—even with fair health

Provided destruction has been slow, other organs may take on the functions of the pancreas Thus Opie (1910) refers to the case of a medical man whose stools for twenty years had contained fluid or solid fat, but who lived in good health till 90 At necropsy his pancreas was found to be almost wholly replaced by fat, the duct of Wirsung being completely blocked by a calculus Vallery-Radot et al (1933) report the autopsy of a man, aged 72, with two years' history of epigastric and right iliac pain and steatorrhœa, whose pancreas was entirely replaced by fat, a large stone lying in the duct and smaller ones being scattered throughout the gland, who nevertheless never had glycosuria

ÆTIOLOGY

The ætiology of pancreatic lithiasis is still obscure It is generally agreed that infective inflammation, whether by way of ducts, lymphatics, or blood-stream, and stasis of secretion are essential causal factors Normal pancreatic juice contains no calcium carbonate, the chief constituent of calculi, but in the presence of inflammation some change presumably takes place in the process of secretion, resulting in its formation Its frequent association with disease of the biliary tract points to a common cause.

Two types of stone are recognised · those formed within the ducts by precipitation on a nucleus, as in the kidney or the gall-bladder, and, when limited to the main or secondary ducts, referred to as localised; and those scattered throughout the gland Mayo (1936) calls the latter, when lying in the parenchyma, "false stones," being a calcification of the inflamed tissue of the pancreas, such as is likely to happen in inflamed tissue elsewhere It is in connexion with these that he considers disease in the biliary tract so important an ætiological factor. The duct stones, by causing obstruction, lead to interstitial pancreatitis by back-pressure and to further possible stone formation There seems, however, to be some doubt as to whether, when scattered throughout the gland, as they are in most cases, they are formed in the gland tissue only or in the ultimate ductules as well In Ackman and Ross's case (1932) stones of various sizes filled and blocked the main duct and its branches, minute ones being found in the remotest parts of the gland, but always in dilated duct radicles In the case reported below the radiogram shows the stones fairly uniformly distributed throughout the gland, but those which caused trouble were obviously duct stones Precipitation and calcification may take place together

CASE-RECORD

A man, aged 76, had always enjoyed good health, except for what would be generally regarded as trivial ailments (see below) His urine was always normal when examined for insurance, and his arteries were free from any suspicion of atheroma. There was no history of syphilis, and the patient was always very abstemious as regards alcohol

On March 10, 1929, he was seized, without warning, with epigastric colic, recurring in paroxysms of increasing intensity every few minutes and causing the most profound collapse He was taken to a nearby nursing-home and seen by a doctor, who diagnosed gall-stone colic, a diagnosis with which I subsequently agreed In spite of a hypodermic injection of morphia the paroxysms continued some hours and then suddenly ceased, and he left the nursing-home the next morning feeling quite well, though a little tender in the epigastrium.

A fortnight later he had a recurrence, which, though less severe, required morphia. The attacks were repeated roughly at monthly intervals for the next fourteen months, becoming less severe and of shorter duration, until finally they lasted only ten to fifteen minutes and caused little more than discomfort with a feeling of faintness. They were never accompanied by jaundice or rise of temperature. On two or three occasions after the first attack search, though not very thorough, was made in the stools, but no stones were found. The patient located the pain deeply at a point 1 in. below the xiphoid cartilage and described it in the earlier attacks, especially the first, as though gas or fluid were being pumped into a small cavity, which threatened to burst.

A radiological examination was made by Dr Gould Williams, then radiologist to the Swansea Hospital. The gall-bladder did not stain well, and as regards it the findings were inconclusive. The area of the pancreas was mapped out by innumerable small shadows (see figure). For this illustration and for other radiological examinations made since, in the course of which disease of the biliary tract was eliminated, I am indebted to Dr Howell Davies, assistant radiologist to the hospital. The figure shows the condition today, the radiological picture being practically unchanged since 1920.

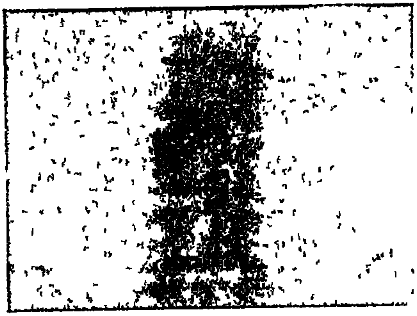
As regards treatment, in considering the question of operation after the fourth attack, it was assumed that calculi lying in one of the lobules of the pancreas were finding their way into the main duct and being successively discharged, and that, being of fairly uniform size, their passage at the duct outlet, owing to previous dilatation, was on each occasion becoming easier. It was consequently held that pancreatotomy was not necessary. Similarly it was considered that there was not sufficient evidence of pancreatitis or of cholecystitis to call for biliary drainage. It was therefore decided to await events, a decision which appears to have been fully justified both by the absence of change in the radiological picture after nine years and by the fact that the patient has remained in excellent health not only during the period of recurrence of the attacks but also ever since.

The following details of the previous history are relevant.

At 10, immediately after a surfeit of strawberries—though the connexion was not at that time recognised—he developed what was evidently a virulent form of urticaria, accompanied by the sudden appearance of transitory swellings, mostly about the face. This lasted over twelve months, with intervals of only a few days, and then gradually disappeared. It was accompanied at first by acute indigestion, from which he had never previously suffered. It was always aggravated by pickles or anything containing vinegar.

At 33 he had a mild attack of painless jaundice, which lasted three or four weeks. At 34 he had a recurrence of urticaria, the so-called giant form, with severe angioneurotic œdema. It was accompanied by a troublesome flatulent dyspepsia and was aggravated by the same articles of food as before, but also by soft fruits, especially strawberries, and, he thought, by wines. Shortly before the onset he had taken up motoring, and it soon became obvious that the urticaria was aggravated as much by driving long distances as by foodstuffs. In spite, however, of giving up the wheel and avoiding all articles of diet which he knew to be nocuous, he was seldom free from it, and after some eighteen months, when his working capacity was becoming seriously affected, mainly through want of sleep, it was suggested that possibly deficiency of serum-calcium was the cause of the trouble.

The calcium content of the blood was investigated by the then recognised method, and clotting time was found to be double the normal. The administration of calcium chloride in large doses was followed by immediate and complete relief and normal clotting time. To maintain this, however, to keep free from urticaria, and at the same time to resume ordinary diet, including soft fruit, salads, and cucumber, with the usual vinegar dressing, of which he was particularly fond and had been so long deprived, he found it necessary to take calcium regularly. Besides a diet in which dairy produce figured very largely he took gr. 90–100 of calcium lactate daily for eight months or more, long after the final disappearance of the urticaria, and, in the belief that it was harmless, continued it as a prophylactic at short intervals for the next four years. Meanwhile the flatulent dyspepsia, which had previously defied treatment, yielded to simple remedies within two months of starting the treatment.



Radiogram of diffuse lithiasis of pancreas. Patient recumbent: the body and tail of the pancreas are at the level of the first lumbar vertebra and the head of the pancreas is mainly to the right of the second lumbar vertebra and the intervertebral disk above.

Since then he has remained in excellent health apart from the attacks of colic twenty-five years later, which led to the discovery of the calculous deposits in the pancreas.

Although the clotting time test alone may not now be regarded as sufficient proof of excess or deficiency of serum calcium content, all the foregoing facts being taken into consideration, there can be little doubt that he was at the time of his second attack of urticaria the subject of hypocalcæmia. Moreover, from the rapidity with which a few doses of calcium salts were followed not once but repeatedly by immediate relief, though at first only temporary, it is evident that the rate of absorption of these was abnormally high and their influence in raising the blood-calcium level for the time being correspondingly great. Further it seems that the hypocalcæmia was not only corrected but also over-corrected and the resulting hypercalcæmia maintained for at least several months, the period certainly overlapping that during which he was still troubled with dyspepsia.

It will be seen, therefore, that the conditions which obtained at this time were precisely those by means of which experimental hypervitaminosis D is brought about in animals as described by Gillespie (1935) and it is reasonable to assume that it was now that the calcium deposits were laid down in the pancreas. Hypervitaminosis D is produced by administering excessive quantities of vitamin D together with large quantities of calcium, with the result that excessively large quantities of the vitamin and of calcium are absorbed from the intestine, causing hypercalcæmia and local metastatic calcification. The condition is similar to the not uncommon metastatic calcareous deposits in arteries, lung, kidney and stomach wall in generalised osteitis fibrosa, also probably the direct result of hypercalcæmia Assuming that the dyspepsia was of pancreatic origin—i e, associated with a catarrhal pancreatitis, according to Weiss (1935 extremely common—the determination of the cal) careous deposit to the pancreas is still more readily explained. Had he been the subject of tuberculosis or of thyroid disease, the deposits would presumably have affected the lungs, lymphatic glands, thyroid, or other organs instead of the pancreas

It might be argued that, according to the history, there were at least two other occasions when the deposits might have been laid down—namely, at 17, when he suffered from urticaria and acute indigestion, and at 33 when he had an attack of catarrhal jaundice As regards the former, if there had been any variation in the serum-calcium content, it would presumably have taken the same form as in the second attack—i.e., hypocalcæmia—and there was no occasion given for the supervention of an induced hypercalcæmia. Although a pancreatic catarrh might have been associated with the catarrhal jaundice at 33, there were no accompanying dyspepsia or other symptom to indicate this

Without falling into the error of arguing from a single case that hypercalcæmia is an essential ætiological factor in pancreatic lithiasis, such a thesis receives support from experiments carried out by Loeper, Bioy, and Perreau (1936) The pancreas being part of the apparatus for the elimination of calcium from the body, the calcium content of the secretion naturally varies. The object of the investigation was to ascertain the proportion of a sudden increase in the calcium-content of the blood which is eliminated by the pancreas Injection of calcium chloride and gluconate into the veins of animals was found to be immediately followed by a 30 per cent increase of calcium in the pancreatic juice. Hence, while hypercalcæmia under favourable conditions—e g, inflammation—may lead to calcification of the parenchyma, the increase in the calcium content of the excretion would also cause the same tendency as regards the formation of calculi in the ducts

Fortunately, pathological conditions characterised by hypercalcæmia are rare; otherwise, should the theory here advanced prove correct, pancreatic lithiasis would be far commoner than it is It should be added that recent examinations of the patient's blood show the calcium content to be normal.

SUMMARY

(1) The difficulty in the diagnosis of pancreatic lithiasis is due to the absence of any pathognomonic symptom or sign, except the discovery of pancreas stones in the stools (which is rare, owing to their friability), and to the accompanying pancreatitis.

(2) The only characteristic features are evidence of pancreatic insufficiency in fluid withdrawn from the duodenum and the presence of undigested fat and muscle-fibre in the stools.

(3) The difficulties of recognising pancreas stones radiologically are explained. A plain radiogram should always be made before giving a barium meal

(4) A case is reported in which it is believed that an induced hypercalcæmia played an important part in the formation of calculi

I must acknowledge the help which I have received from Dr. A. F Sladden, director of the Beck Laboratory, in discussing with him various points arising in this article, and in recently examining the patient's blood, when he found the calcium content normal.

References at foot of next column

VITAMINS D_2 AND D_3 IN INFANTILE RICKETS

A COMPARISON OF THEIR THERAPEUTIC EFFICIENCY

By Noah Morris, M D, D Sc Glasg., M R C P.
REGIUS PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS IN THE UNIVERSITY OF GLASGOW; VISITING PHYSICIAN, STOBHILL HOSPITAL, AND

Mary M Stevenson, M D. Glasg.
VISITING PHYSICIAN TO THE CHILDREN'S DEPT. OF THE HOSPITAL

For some years attempts have been made to show that the source of vitamin D is an important factor in determining its antirachitic potency in the human subject The concentration of this vitamin in any substance is estimated by its action in preventing and curing rickets in rats fed on a rachitogenic diet. The late Dr Alfred Hess was one of the chief exponents of the view that the rat method of assay was not necessarily an accurate indication of the relative efficiencies of various methods of supplying vitamin D. Hess and Lewis (1933) stated that irradiated milk was more valuable than either cod-liver oil or irradiated ergosterol as a therapeutic agent in human rickets, even when all three were given in amounts containing the same number of international units (I U.)—i e, in doses equipotent for the rat The more carefully controlled investigations of Eliot et al (1936) have not demonstrated any such difference With the introduction of vitamin D_3 further efforts have been made to determine the relative potencies of the various types of vitamin D.

ANTIRACHITIC POTENCIES OF VARIOUS FORMS OF VITAMIN D (figures after Brockmann 1938b)

Vitamin	Derived from—	International units per mg (rat assay)	Protective dose for chicken rickets
D_2	Ergosterol	40,000	12 0
D_3	7-Dehydrocholesterol ..	40,000	0 2
D_4	22-Dehydroergosterol	30,000	1·0
D_5	7-Dehydrositosterol ..	1200	360 0

Bills points out that the properties of vitamin D are exhibited by ten different sterol derivatives. Mention may be made of the four vitamins, D_2, D_3, D_4, and D_5, for which experimental data are available indicating their different potencies when tested on rats and chickens. (It will be noted that there is no D_1, which term was used for a lumisterol-calciferol mixture originally thought to be the pure vitamin) From the practical point of view at present only two need be considered—vitamins D_2 and D_3 D_2, better known in this country as calciferol, is formed by the irradiation of ergosterol, a substance which is essentially a constituent of the sterols of plants, although its

MR BROOK: REFERENCES

Ackman, F D, and Ross, A (1932) *Surg Gynæc Obstet* 55, 90
Gillespie, W A. (1935) *Irish J med. Sci* July, p 320
Hartman, H R (1925) *Ann Surg* 82, 956
Loeper, M, Bioy, E, and Perreau, P. (1936) *Bull Mém Soc méd Hôp Paris*, 52, 673
Mayo, J. G (1936) *Proc Mayo Clin* 11, 456.
Opie, E L (1910) Disease of the Pancreas, London, 2nd ed p 92
Robson, A W M (1904) *Lancet*, 1, 773.
Seeger, S J (1928) *Radiology*, 10, 127.
Vallery-Radot, P, Miget, A, and Gauthier-Villars, P (1933) *Bull Mém. Soc méd Hôp Paris*, 49, 1118.
Weiss, S (1935) Diseases of Liver, Gall-bladder, Ducts and Pancreas, New York, p 842.

presence has also been demonstrated in eggs (Windaus and Stange 1936) Vitamin D_3, on the other hand, has as its provitamin 7 dehydrocholesterol, which has been isolated from animal sterols and is present in relatively high concentration in tunny liver and halibut liver oils In 1937 Schenck working in the laboratory of Windaus, announced his success in preparing crystalline vitamin D_3 which was found to have a potency of 40,000 I U per mg , establishing the equal antirachitic potencies of vitamins D_2 and D_3 when tested on rats For chicks however, Grab (1936) found D_3 much more effective than D_2

As regards the relative efficiency for the human infant, Hume (1936–37), after reviewing the recorded data up to 1936, states that " the conclusion seems fairly certain that for the human infant vitamin D from fish liver oils, irradiated ergosterol, irradiated cholesterol and vitamin D milks of various kinds has the same relative potency as for rats " In the past three years, however, some fresh studies with infants have appeared

Lewis (1937) found that irradiated ergosterol was less powerful than cod-liver oil or percomorph-liver oil, both of which contain vitamin D_3 Drake (1937) stated that irradiated cholesterol (D_3) was superior to irradiated yeast (D_2) Burchard (1937) maintained that the preparation commonly used in Germany was *more potent than an amount of D_2* containing the same number of international units and attributed this to the fact that the D vitamin of Vogan was D_3

From these results one cannot, however, deduce that D_3 is superior to D_2 in the treatment of human rickets, for the fish liver oils and Vogan may and probably do contain other active substances The preparation of crystalline vitamin D_3 makes it possible to use the pure vitamin in clinical assays

Brockmann (1937) used vitamin D_3 in the successful treatment of 21 infants with florid rickets , he gave doses of 0 02 or 0 01 mg per kg of body-weight daily —i e , not less than 4000 I U a day But, on the assumption that the minimal curative dose of vitamin D_2 is 0 2 mg (8000 I U) daily, he concluded that D_3 had twice the potency of D_2 Unfortunately a similar group of infants were not given vitamin D_2

Hartenstein (1937) found, in a series of 11 infants, that the daily administration of 0 15 mg of D_3 (6000 I U) led to clinical, radiological, and biochemical signs of healing within two weeks In a later investigation (Hartenstein 1938) using single doses of 7 5 mg , he obtained better results with D_3 than with D_2, for 7 of the 10 patients who were given D_2 required much longer treatment

Harnapp (1936) showed, in 11 rachitic infants, that a single dose of 7 5–15 mg of D_3 led to satisfactory healing, and he stated that the rate of healing was more rapid than with D_2 Jacoby (1938), on the other hand, comparing the results of single massive dosage (10–15 mg) of vitamins D_2 and D_3 in groups of 22 and 21 children, found no difference between the effects either on the changes in the radiograms or in the levels of calcium and phosphorus in the serum

Brockmann (1938a) has also obtained the same results with single large doses, but stated that only with minimal amounts of the vitamin could the superiority of D_3 be detected Nadrai (1939a), however, using D_2 and D_3 in amounts of 5–12 5 mg injected intramuscularly to obviate errors in absorption could detect no difference in the therapeutic effects of the two vitamins

Bischoff and Brieger (1938) found, in a series of 50 infants with rickets and spasmophilia, that D_2 and D_3 were equally effective but that the signs of healing appeared sooner with a single large dose than with smaller daily amounts Steinbruck (1938) gave 0 12–0 15 mg of D_2 (4800–6000 I U) daily to 31 infants with rickets, and the same doses of D_3 to another group of 6 infants without observing any difference in the rates of healing

It is clear that the clinical investigations so far recorded are by no means unanimous as to the relative potencies of D_2 and D_3 in the treatment of rickets in the infant

PRESENT INVESTIGATION

In the present study an attempt has been made to compare the potency of crystalline vitamins D_2 and D_3 The real difficulty of the assay was to make certain that the only variable was the vitamin The diet was a milk mixture consisting of milk two thirds, water a third, and sugar and oatflour in amounts suitable for the age of each patient The infants were kept together on the same side of the ward out of direct sunlight So far as possible, infants of the same age were used for comparison Although we could not start the investigation on the same date in each pair, in most instances we obtained suitable subjects of approximately the same age and weight for comparison at times fairly close to one another Every patient was kept in the ward for at least three weeks before the vitamin was administered to ensure as far as possible that the rickets had not begun to heal before specific antirachitic therapy was instituted

Dosage —There is considerable difference of opinion as to the optimal dosage of vitamin D required for the *cure of rickets in the infant*

Shelling and Hopper (1936) believe that it is 3000–4000 I U daily Park (1938) suggests 1200 I U as a curative dose for the ordinary case of rickets but states that this amount may have to be increased for premature and older children and when the rickets, is severe In many German clinics, on the other hand, a dose of 8000 I U is considered necessary (Brockmann 1938b)

In the present investigation it was felt that any differences in the effects of D_2 and D_3 would be best detected if the dosage were on the low side Since ordinarily a patient with rickets would almost certainly be receiving some antirachitic factor either in the diet or by natural ultraviolet irradiation, it was felt that a dose of 2000 I U a day was on the low side for curative purposes This amount was given to each patient, irrespective of age and weight Accordingly the dosage varied in each pair from 140 to 286 I U per kg of body-weight daily Olive oil solutions of vitamins D_2 and D_3 were obtained from the National Institute of Medical Research

Detection of healing —First we attempted to determine the time taken for the earliest sign of healing to appear Secondly it was hoped to obtain some idea of the rate of healing The methods available for the diagnosis of healing are clinical, radiological and biochemical Clinical observations are not nearly accurate enough for the purposes of this investigation Radiology provides a satisfactory method for the detection of the earliest sign of healing Radiograms of the patients were made at intervals of a week before and after the administration of vitamin D began They were reported on immediately by the radiologist, Dr Balfour Black who had no knowledge of the nature of the vitamin given to the particular child Biochemical data are of considerable value in providing figures for comparison The two substances likely *to yield helpful information are inorganic serum* phosphate and plasma phosphatase Since many of the patients were babies and it was necessary to obtain weekly analyses of the blood it was decided to use the plasma phosphatase rather than the serum phosphate

On the whole the evidence goes to show that serial estimations of phosphatase give a more accurate index of the rate of healing (Morris Stevenson et al 1937)

FIG 1

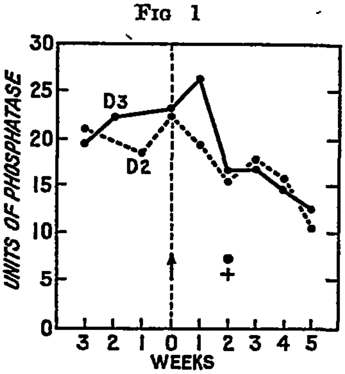
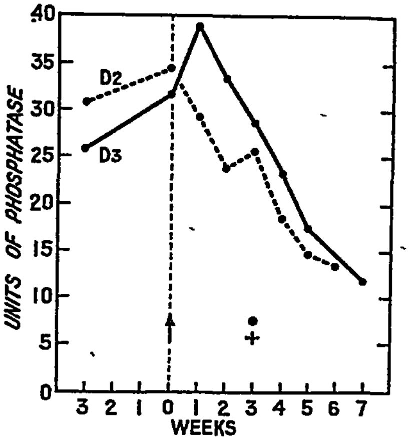


FIG 2



DATA FOR FIGS 1–5

Fig	Vitamin	Age of patient (months)	Date of commencing vitamin therapy
1	D_2 D_3	15 12	March 27, 1938 April 5, „
2	D_2 D_3	12 14	„ 5, „ „ 28, „
3	D_2 D_3	13 16	Feb. 25, 1939 „ 24, „
4	D_2 D_3	10 16	April 10, „ „ 20, „
5	D_2 D_3	25 48	„ 6, 1938 Feb 25, „

+ Commencement of healing D_2
• „ „ „ D_3
↑ „ „ vitamin D therapy

In the event of tetany there is a rise of serum-phosphate which might lead to a fallacious interpretation, especially if the spasmophilia were mild Plasma-phosphatase, increased during rickets, diminishes as healing takes place. The initial reduction takes place about the same time as signs of healing appear on the radiogram It is certain that healing has begun before it is shown by either the radiograms or the plasma-phosphatase value Probably the earliest sign of healing is an increased retention of calcium and phosphorus, which takes place in most infants within a week of the administration of antirachitic factor. It was impossible for several reasons to study such retention; so we had to depend on the radiograms and plasma-phosphatase values, between which there was little discrepancy.

Some idea of the rate of healing in each case was given by the rate of fall of the plasma-phosphatase. In this connexion it is important to remember that variations in the plasma-phosphatase value are due to factors other than rickets In our opinion the level of plasma-phosphatase largely depends on the demand of the bone cells for calcium (Morris and Peden 1937) If insufficient calcium is being retained, the plasma-phosphatase value will rise, provided that the bone cells are active and an attempt is being made at growth Should the growth stimulus for any reason be defective, the plasma-phosphatase will fall in value, and indeed the radiogram may give the picture of healing rickets, merely because the demand for calcium has been reduced below the small amount retained It is obvious, therefore, that the rate of fall of plasma-phosphatase depends not only on the action of vitamin D but also on the amount of growth It is for this reason that, in the evaluation of two forms of vitamin D, care should be taken to compare them in children of the same age, so that as far as possible the amount of growth should be the same

In spite of all these precautions there are instances which are very difficult to explain For instance, female twins, aged 16 months, were admitted to the children's ward in Stobhill Hospital, both of them presenting the typical appearance of rickets Both had been brought up at home and had been bottle-fed on identical milk-mixtures They seemed on admission to be ideal subjects for a comparative study of vitamins D_2 and D_3, but radiography revealed active rickets in one and an advanced state of healing in the other Plasma-phosphatase values corroborated these findings, being 23·5 units in the child with active rickets and 7·6 in the other.

Biochemical and radiological findings were obtained from 10 pairs of children, and radiological data alone from 1 other pair Illustrative charts showing the rate of fall of plasma-phosphatase in 5 pairs of children are given (figs 1–5) The members of each pair were approximately of the same age, and the tests were carried out at the same time of year This latter point is of considerable importance, for the rate of healing varies at different times of the year Thus, in June, during a short period of very good weather, we found that infants who had the radiological and biochemical signs of active rickets on admission showed evidence of fairly rapid healing within three weeks, although they were receiving no special vitamin-D therapy and were kept on the shaded side of the ward This further emphasises the necessity for watching a patient for at least three

FIG. 3

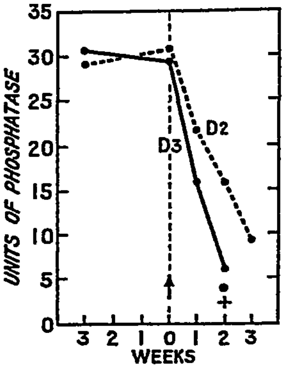


FIG 4

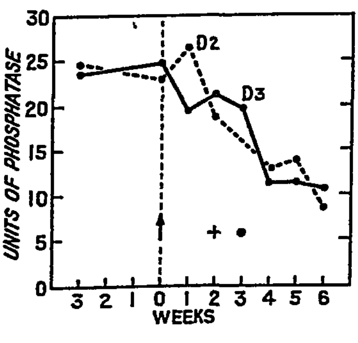
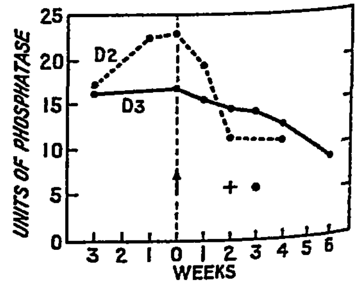


FIG 5



weeks, to make certain that healing has not begun without specific treatment

Results—The time taken for signs of healing to appear in the radiogram shows little if any variation, and the rate of fall in plasma phosphatase value is almost identical in the two groups In 3 patients treated with D_3 and 1 with D_2 there was a transient rise in plasma phosphatase a week after the start of vitamin therapy Hottinger (1929) and Morris, Graham, and Ford (1935) have shown that occasionally there can be detected in patients given vitamin D a transient fall in the retention of lime and phosphorus, followed by a considerable increase The rise in plasma phosphatase might well be due to the "negative phase" of calcium retention, if, as we believe, the level of phosphatase depends on the ratio of the calcium requirement of the bone cells to the supply

The results show clearly that, so far as this investigation is concerned, there is no significant difference between the therapeutic effects of vitamins D_2 and D_3 on the rachitic infant and child Nadrai (1939b) has published the details of a child, aged 4½, successfully treated with a massive dose of vitamin D_3 and infers that this form of vitamin may be specially useful in late rickets It is the general experience that late rickets usually reacts well to the exhibition of a calciferol (vitamin-D_2) concentrate, but that resistant forms of rickets are occasionally met which require prolonged treatment with large doses Even with vitamin D_3 cases may prove refractory, as is evident from the report of Brockmann (1938a) who mentions two patients not responding to 15 mg and a third who did not heal satisfactorily after a second dose

In this connexion the inhibitory effect of infection on many therapeutic measures, including the administration of vitamins, must always be kept in mind In the present series a careful examination was made for any signs of infection and, if they were found, the child was not considered suitable for the purposes of the investigation Folberth (1937) states that vitamin D_3 overcomes to a greater degree than D_2 the inhibitory effect of infection This may be so, but we feel that a larger series of cases must be examined before this can be confirmed Doubt indeed is cast upon the superiority of D_3 in infections by the results of Nadrai (1939b), who investigated a series of 14 rachitic infants with pneumonia, 8 received vitamin D_3 and 6 vitamin D_2 but no difference was observed in the course of the disease in the two groups

SUMMARY

The course of healing in 12 infants and children with active rickets was studied by serial radiography of the wrists and by estimation of the plasma phosphatase 6 patients being given vitamin D_2 and 6 vitamin D_3 in amounts equivalent to 2000 I U daily

The results revealed no significant difference between the therapeutic effects of these two vitamins on rachitic infants and children

This investigation was carried out at the request of the Therapeutic Trials Committee of the Medical Research Council We acknowledge our indebtedness to Sir Henry Dale and Mr C Webster for supplying us with the vitamins, to the Medical Research Council for an expenses grant to Dr W Martin, medical superintendent of Stobhill Hospital, for granting us facilities, and to Sisters Jack and Provan for their coöperation

REFERENCES

Bills, C E (1938) *J Amer med Ass* 110 2150
Bischoff H and [illegible] H (1938) *Klin Wschr* 17 1793
Brockmann H (1937) *Ibid* 16 1383

Continued at foot of next column

EFFECTS OF DRUGS IN MYOTONIA

By E Guttmann, M D Munich
AND
A B Stokes, B M Oxfd, M R C P, D P M
(*From the Maudsley Hospital, London*)

The work of Foster Kennedy and his collaborators on the contrasting effects of quinine and Prostigmin in cases with myotonia and myasthenia suggested an investigation of the following case

CASE RECORD

A male, aged 20, complained of "stiffness of every muscle of his body" that prevented muscular relaxation, difficulty in sustaining forceful effort, and difficulty in accommodating himself to sudden changes of movement There was no history of any relation having been similarly affected His father and mother have a common ancestor in the sixth generation from the patient There are five siblings, all of whom are unaffected

History of present condition—He has noticed his condition as long as he can remember, but only since the age of 16 has he realised that he is different from other people He has attended various hospitals and seen numerous doctors and osteopaths, none of whom has produced any benefit The condition has not progressed, and he has been able to lead an ordinary life, except for certain restrictions His ability to play games has been interfered with, and he has had considerably to curtail dancing and driving a car Apart from the difficulties of muscular effort, he has *no other physical symptoms, and his past medical history has been uneventful*

The patient has always adapted himself very well to his physical surroundings He is cheerful and intelligent, has a good school record and is making excellent progress in his work as a draughtsman He is not hypochondriacal, although naturally anxious for treatment with belief in the possibility of cure

He was admitted to the Maudsley Hospital on May 27, 1932, for a short period of observation, and his condition was diagnosed as myotonia congenita (Thomsen's disease) No treatment was instituted

The patient was again examined on Sept 9, 1936, when his condition was the same as before An examination of the central nervous system revealed no abnormality, apart from the muscular phenomena His pupillary reaction to light was delayed, but there was no abnormality of movements of the external ocular muscles On forceful closure of the eyes the frontalis muscles had to be brought into action in

---

PROF MORRIS & DR STEVENSON REFERENCES (*cont*)

Brockmann H (1938a) *Z Kinderheilk* 60 359
— (1938b) *Ergebn Physiol* 40, 295
Burchard M (1937) *Z Kinderheilk* 59 249
Drake T G H (1937) *Amer J Dis Child* 53 754
Eliot, M M, Nelson E M, Barnes D J, Browne F A, and Jones, R M (1936) *J Pediat* 9 355
Folberth W (1937) *Z Kinderheilk* 59 320
Grab, W (1936) *Hoppe-Seyl Z* 243 63
Harnapp G O (1936) *Klin Wschr* 15 1013
Hartenstein H J (1937) *Mschr Kinderheilk* 71, 215
— (1938) *Ibid* 76 163
Hess, A F and Lewis J M (1933) *J Amer med Ass* 101 181
Hottinger, A (1929) *Z Kinderheilk* 47 341
Hume E M (1936 37) *Nutr Abstr Rev* 6 961
Jacoby, G (1938) *Klin Wschr* 17, 1173
Lewis J M (1937) *J Pediat* 10, 1[illegible]
Morris N, Graham S G, and Ford F J (1935) *Acta paediatr, Stockh* 18 59
— and Peden O D (1937) *Quart J Med* 6 211
— Stevenson M M, Peden, O D, and Small J M D (1937) *Arch Dis Childh* 13 45
Nadrai A (1939a) *Arch Kinderheilk* 116 235
— (1939b) *Z Kinderheilk* 60 529
Park E A (1939) *J Amer med Ass* 111 1179
Schenck F (1937) *Naturwiss* 25 159 cited by Brockmann (1938b)
Shelling D H and Hopper K B (1936) *Bull Johns Hopk Hosp* 58 137
Steinbruck P (1938) *Mschr Kinderheilk* 74 183
Windaus A, and Stange O (1937) *Hoppe-Seyl Z* 244 218

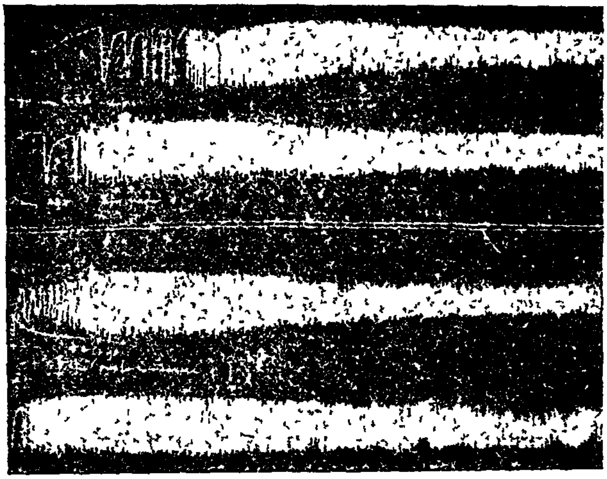


FIG 1—Ergograph records before and after a single dose of quinine hydrochloride: (A) right hand before; (B) left hand before, (C) right hand after, (D) left hand after. Reduction of myotonia, allowing for "practice effect." Fatigue delayed.

the effort of reopening the lids. The jaw muscles in closure showed myotonia, and retraction of the tongue was difficult after protrusion. The muscles of the upper limb most affected were the trapezius, deltoid, pectorals, and flexors of the fingers. The hand grasp was characteristic, with flexion of the wrist to enable release. The extensors of the fingers were scarcely affected. In the legs the glutei and extensors of the knee were chiefly involved. The muscles of respiration were slightly affected, and after forced inspiration expiration was a little delayed. The recti abdominis showed myotonia, but the back muscles were not involved.

There was no clear evidence of dystrophy. The patient had a somewhat delicate skin with a boyish physique. The genitalia and secondary sex characters were well developed. The left sternocleidomastoid muscle was doubtfully smaller than the right. There was flattening of the lateral part of both thenar eminences, and the calf muscles were prominent. These features have been interpreted by Maas (1937) as evidence of dystrophia myotonica, but the interpretation must remain equivocal.

INVESTIGATION

Technique.—The finger movements in flexion and extension were selected for recording, because the myotonia was maximal in the flexor muscles and almost absent in the extensors. A Mosso's ergograph was used, with a small weight (12 oz.) to keep the string taut. The patient was instructed to flex his finger from the horizontal as quickly as possible and to repeat the movement as rapidly as possible after active extension. This repetition was maintained until fatigue was obvious. A lever recorded the movements on a slowly moving smoked drum. The difficulty of reproducing the same fatigue curve from the same person at different times is well known to everyone who has worked with this time-honoured apparatus. Nevertheless, recent investigations, such as that by Alcock and Carmichael (1938), have shown that the method is well workable, if its limitations are kept in mind. In particular the difficulty of duplicating the leverage conditions on different occasions is considerable. In interpretation of the curves the extent of excursion was therefore neglected from day to day, the form of relaxation and the onset of fatigue on the same day being regarded as of greater significance. It was found, further, in connexion with these experiments carried out on the same day, that the effect of repetition and continuation of the movements was a factor of great importance in interpretation ("practice effect"). After the first period of effort the initial myotonia was much reduced without being influenced by any drug.

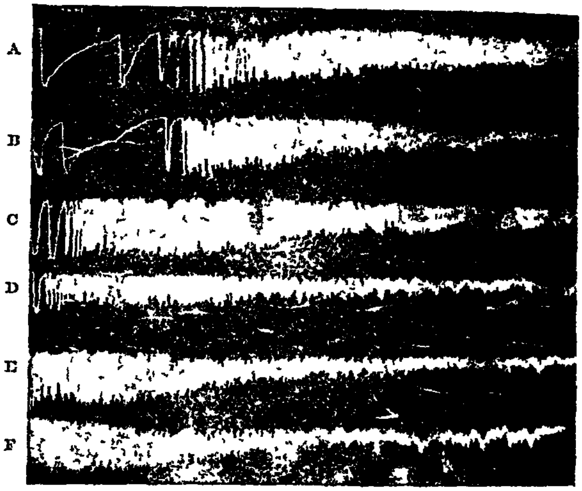


FIG 2—Ergograph records after prolonged administration of quinine hydrochloride gr 10 daily. (A), (C) and (E) right hand; (B), (D) and (F) left hand. Early reduction of myotonia with "practice."

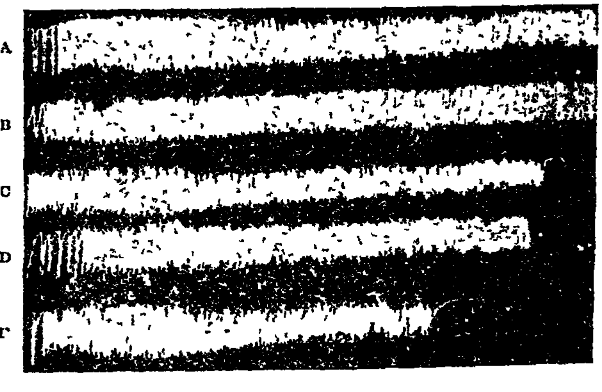


FIG 3—Ergograph records before and after prostigmin: (A) left hand before. (B) and (D) right hand after. (C) and (E) left hand after. No reduction of myotonia with "practice" after 40 min. Early fatigue.

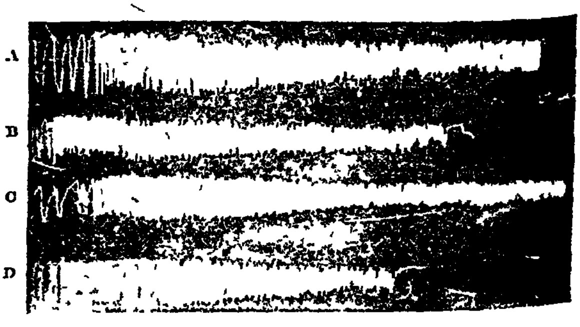


FIG. 4—Ergograph records after benzedrine. (A) right hand 10 min. after, (B) left hand 10 min. after, (C) right hand 55 min. after; (D) left hand 55 min. after. No improvement.

Periods of medication and subjective response —From Sept 23 to Dec 26, 1936 the patient was given quinine hydrochloride gr 10 daily in 5 gr capsules There was no untoward effect of this dosage He felt very much more buoyant and less stiff and particularly noted improvement in such acts as getting upstairs His parents also noted the improvement He was very pleased inasmuch as this treatment was the first which had ever produced a beneficial effect

From Dec 26 1936, to Jan 28, 1937, the patient was given apparently similar capsules containing inert powder He stated that improvement was maintained until Jan 1 After that date he felt very much more stiff was more awkward in getting up from the table and on getting out of his train had to stand still on the platform He was not disheartened at first at the apparent failure of the treatment, attributing the set back to a slight cold he had at that time By Jan 28 he was however, definitely despondent, complaining of stiffness of the face, and stiffness of his tongue on starting to talk and eat He could not enjoy the season s festivities—e g , dancing—because of his disabilities

From Jan 28, 1937, he has been receiving continuous treatment with quinine hydrochloride usually taking gr 10 daily, sometimes gr 15 The higher dosage causes hissing in the ears He has reported continued relief, strongly contrasted with renewed disability on those occasions when he has not taken quinine He finds it easy to drive a car, which previously he would not undertake because of the difficulty with such movements as looking behind when *reversing* He can dance and play tennis vigorously The stiffness has not left him completely, but he can shake off the initial stiffness more easily, and the stiffness of fatigue does not come on so early In January, 1939 the quinine was still producing its ' miraculous " effect

Objective findings with the ergograph —Quinine medication in continuous dosage and in a single large dose produced little effect on initial relaxation, but fatigue was less easily induced The "practice effect " in overcoming the myotonia was induced earlier (see figs 1 and 2)

The effects of intramuscular injections of prostigmin 0 001 g are shown in fig 3 Slight 'practice effect " which is not maintained, is demonstrated in curves A, C, and F (left hand) The right hand, not tested before the injection shows no improvement as compared with previous experiments (B) , the practice effect in improving the curve is absent, and the performance in the second test (D) is worse than in the first (B)

The administration of Benzedrine (Amphetamine) 20 mg by mouth was associated with a vigorous behaviour response and a rise of blood-pressure (95/65 contrasted with 115/72 after fifty five minutes) The ergographic *record did not show improvement* , if anything, there was a lessening of " practice effect " and earlier fatigue (fig 4)

DISCUSSION

The clinical observations of Kennedy and Wolf (1937) were confirmed in our case and the value of quinine medication graphically recorded The experiments with other drugs suggest the following considerations keeping in mind that the disturbance from which the patient suffers is his inability to overcome the abnormal tonic state of his muscles, even with voluntary effort

Prostigmin affects the skeletal muscle The curves show that this peripheral action cannot reduce the myotonia , if anything the performance is worse In the dosage given prostigmin has no effect on motor centres Benzedrine, *on the other hand*, causes cerebral stimulation, which in our case was clearly noticeable as euphoria, increased talkativeness and increased activity Nevertheless, the performance registered on the ergograph did not improve *The effect of prostigmin is generally* parasympathicomimetic and that of benzedrine sympathicomimetic , neither drug in therapeutic doses improves the myotonia

Quinine in relatively small doses, has an obvious *effect on the myotonia Considering the dose and the* negligible auditory-vestibular symptoms, a central action or a vestibulo vegetative reflex is not likely to be responsible Briscoe (1939) has shown that as regards the normal skeletal muscle, quinine is *antagonistic to prostigmin and exercises its effect both* by raising the threshold of the motor end plates and by direct action on the muscle-fibres Our clinical observations agree well with her experimental findings The question of which peripheral factor is of more importance *in the relief of the myotonia remains* unanswered

We wish to thank Prof E Mapother for allowing us to use this case and Dr Aubrey Lewis for his interest and criticism

REFERENCES

Alcock, N S, and Carmichael E A (1938) *Quart J Med* 7, 565
Briscoe G (1939) *Lancet*, i, 1151
Kennedy, F., and Wolf A (1937) *Arch Neurol Psychiat*, *Chicago*, 37 68
Maas O (1937) *Brain*, 60, 498

CONTROL OF GASTRIC ACIDITY IN PEPTIC ULCER

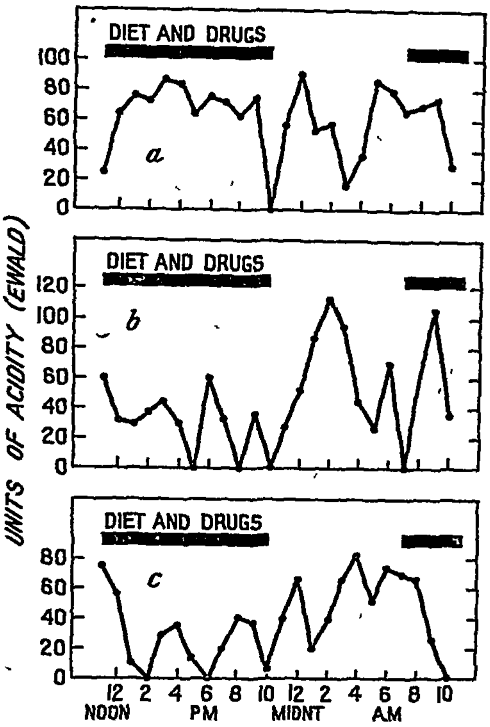
By B M Nicol, M B Aberd
ASSISTANT IN MEDICINE IN THE UNIVERSITY OF EDINBURGH

FOR all patients with peptic ulcer and hyperacidity it is customary to advise a strict dietary regime on the lines advocated by Sippy (1915) and Hurst (1929) The result claimed for such diets is the complete neutralisation of all the acid secreted by the stomach during the waking hours Since hourly feeds and intermediate doses of alkalis, atropine, and olive oil are often irksome and unpleasant to the patient and cause considerable trouble to the nursing staff it is obviously desirable to know whether the *effects claimed by the advocates of these measures are* obtained or not

The argument that these complicated schemes of diet are justified by their good results is not sound, for it has long been recognised that the symptoms of uncomplicated peptic ulcer *often rapidly disappear* and healing takes place when the patient is rested in bed whether or not strict dietetic treatment is used It would be necessary to submit statistics showing that the percentage of cures is higher than that offered by other dietetic schemes which are simpler and more pleasant Equally good immediate results are claimed for many diets which differ from one another in regard to both their constituents and the interval between feeds

In view of these observations, and since hyperchlorhydria is believed by many to be the essential factor in preventing healing of ulcers an investigation has been carried out to determine the effect of diet, alkalis and atropine in the control of gastric

Fig. 1



acidity. Further, a series of patients has been treated by rest in bed as the sole therapeutic measure, and satisfactory healing has been found in many of them These findings will be reported later, this communication dealing only with the control of gastric acidity by the diets and drugs now most commonly employed

Method employed—Estimations of gastric acidity have been made over 24-hour test periods, samples of gastric contents being removed for titration just before feeding or between feeds at intervals of ¼, ½, or 1 hour. Topfer's reagent and phenolphthalein were used as indicators for free and total acid respectively. The diets tested are shown in table I, together with the standard amounts of atropine, olive oil, and alkaline powder used

EFFECT OF DIFFERENT DIETS

In duodenal or gastric ulcer associated with hyperacidity it has been found impossible to obtain complete neutralisation of the gastric contents by any of the diets tested, either alone or in combination with atropine or alkaline powder in the standard doses described (table I)

Fig. 1 shows the 24-hour curves of free gastric acidity in a patient with uncomplicated duodenal ulcer on the hourly (*a*), two-hourly (*b*), and light diets (*c*), the standard amounts of atropine and alkalis recommended by Hurst being added to each diet For purposes of comparison the average figure for free acidity has been calculated for the twenty-four specimens in each curve There is little difference between the mean acidity for the two-hourly and light diets, but both give a considerably lower figure than the hourly diet Table II gives the mean free acidity in 5 cases when the hourly, two-hourly, and light diets are compared. In the first column is shown the maximum of free acid present when a fractional test-meal was done The tables show that this figure bears no constant relationship to the mean free acidity during twenty-four hours and cannot be taken as an indication of the secretory response of the stomach to food over long periods.

Table I—composition of diets and doses of drugs

Hourly diet	5 oz of milk, milk pudding, or vegetable purée—e g, potato, artichoke Each feed of milk or of milk pudding has 1 oz of cream added
Two-hourly diet	5 oz of milk, milk pudding, or vegetable purée from 8 A M to 10 P M, with three main meals consisting of oatflour porridge and 1 or 2 eggs at breakfast (8 A M), chicken, rabbit, fish, or tripe and milk pudding at luncheon (1 P.M), and eggs or fish at supper (6 P M)
Light diet	Breakfast (8 A M) porridge, eggs or fish, milk or milky tea, and toast Dinner (1 P M): cream soup, chicken or rabbit, fish or tripe, and milk pudding Tea (4 P M) · toast or biscuits, and milky tea Supper (6 P M) eggs or fish, tea, and toast Milk 5 oz before going to sleep
Drugs	Atropine sulphate gr 1/200 before breakfast and luncheon and at night Alkaline powder (heavy magnesium carbonate 1 part, calcium carbonate 1 part, and sodium bicarbonate 2 parts) 1 drachm four times a day after feeds Olive oil ½ oz thrice daily

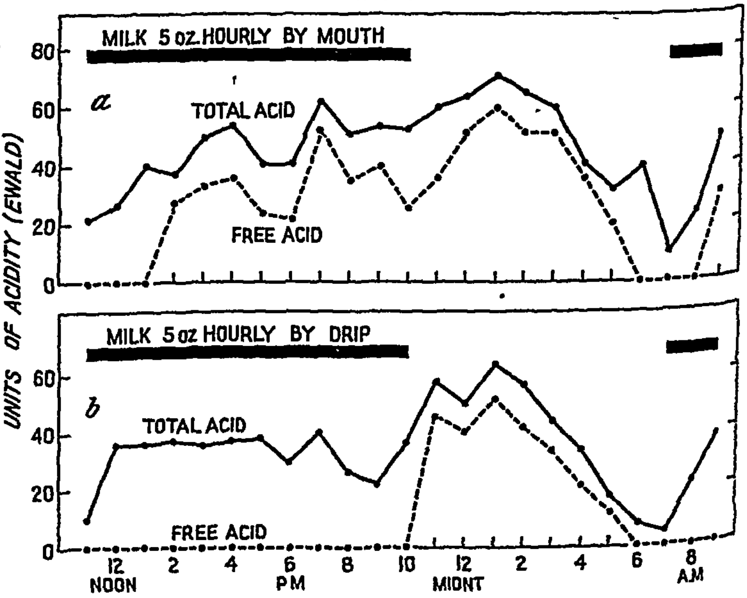
The two-hourly and light diets give very similar results, and in 4 out of the 5 cases these are considerably lower than the mean acid value on the hourly diet. Table III shows the results in a further 14 cases of peptic ulcer when the acidity on the hourly diet is compared with that on the two-hourly diet. The two-hourly diet in every case gives a lower figure, in some only lower by a few units, in others less than half.

It can be concluded from the above experiments that two-hourly and light diets are better than an hourly diet in neutralising the gastric secretion of hydrochloric acid.

EFFECT OF LARGE DOSES OF ATROPINE AND ANTACIDS

During the course of the previous experiments it became obvious that the standard amounts of atropine, olive oil, and alkaline powder used with the diets had little or no effect on the mean gastric

Fig. 2



acidity, and further tests were therefore carried out to estimate the results of much larger doses of atropine and of large doses of the new "neutral antacids" For this purpose atropine sulphate gr 1/50 every four hours, or 1 drachm of magnesium trisilicate or aluminium hydroxide gel every hour from 7 A M to 10 P M, was given with the two hourly diet shown in table I The atropine was administered in 1 oz of water before the feeds, and the antacids shortly after the feeds

Table IV shows the mean free acidity of the 24 hour test meals done in 5 patients on the two hourly diet with and without atropine sulphate gr 1/50 every four hours It will be seen that atropine, given in toxic doses, does not produce any constant or pronounced effect on gastric secretion

Table V shows the mean free acidity of the 24 hour samples obtained from 9 patients on the two hourly diet with and without 1 drachm of either aluminium hydroxide gel or magnesium trisilicate every hour from 7 A M to 10 P M It is seen that neither aluminium hydroxide nor magnesium trisilicate produced any constant or pronounced effect on the mean acidity of the gastric contents during twenty four hours

Fig 3

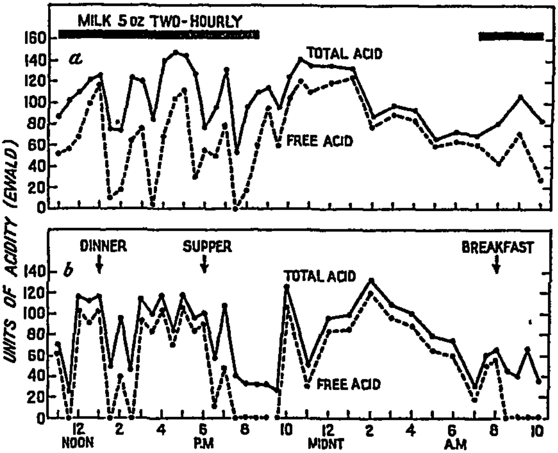


TABLE II—MEAN FREE ACIDITY OF GASTRIC SPECIMENS OVER 24 HOUR TEST PERIODS IN 5 CASES OF PEPTIC ULCER ON HOURLY, TWO HOURLY, AND LIGHT DIETS

Diagnosis	Maximum free HCl F T M	Mean free HCl		
		Hourly diet	Two hourly diet	Light diet
D U	74	61	39	47
"	28	37	17	21
"	29	48	39	43
"	70	65	60	60
G U	28	54	46	42

F T M = fractional test meal,
D U = duodenal ulcer, G U = gastric ulcer
Units = number of c cm of N/10 NaOH required to neutralise 100 c cm of gastric specimen

DISCUSSION

Milk and the antacids tested, in the quantities usually given to these patients, neutralise more than 2000 c cm of a 0 3 per cent solution of hydrochloric acid in vitro, this amount of acid being usually taken as the upper limit of normal gastric secretion in twenty four hours Two main factors may be responsible for the fact that these substances do not neutralise the free gastric acidity in vivo (1) in patients with peptic ulcer and hyperacidity the time during which interaction can take place between milk, or any other antacid, and hydrochloric acid may be unduly shortened by a decreased emptying time of the stomach, and (2) a much larger volume of gastric juice may be secreted

TABLE IV—MEAN FREE ACIDITY OF GASTRIC SPECIMENS OVER 24 HOUR TEST PERIODS IN 5 CASES OF PEPTIC ULCER ON TWO HOURLY DIET WITH AND WITHOUT ATROPINE SULPHATE FOUR HOURLY

Diagnosis	Maximum free HCl F T M	Mean free HCl	
		Two hourly diet	Two hourly diet + atropine gr 1 50 four hourly
D U	?	42	41
"	100	49	43
"	100	60	43
"	70	60	6
D U and G U	67	17	24

TABLE III—MEAN FREE ACIDITY OF GASTRIC SPECIMENS OVER 24 HOUR TEST PERIODS IN 14 CASES OF PEPTIC ULCER ON HOURLY AND TWO HOURLY DIETS

Diagnosis	Maximum free HCl F T M	Mean free HCl	
		Hourly diet	Two hourly diet
D U	60	52	50
"	?	50	42
"	100	74	49
"	60	55	46
"	74	61	39
"	28	37	17
"	[illegible]	65	[illegible]
"	20	48	39
"	40	66	53
"	25	74	62
"	100	61	60
"	70	65	60
G U	28	54	46
G U and D U	67	49	17

Evidence that a decreased emptying time plays an important part in preventing the diet and drugs from neutralising the acid has been obtained by comparing the mean gastric acidity over twenty four hours on a diet of 5 oz of milk given hourly by mouth, with the mean acidity when the same amount of milk is administered by a continuous drip directly into the stomach Fig 2 shows the findings in such a case With the continuous drip (*b*) complete neutralisation was obtained, and a considerable combined acidity was recorded, whereas, when the milk was given at the beginning of each hour (*a*), a higher free acidity and a lower combined acidity resulted This indicates that the greater part of 5 oz. of milk is discharged into the duodenum in less than an hour, leaving little in the stomach to combine with the acid secreted before the next feed is given Table VI shows the figures abstracted from seven such experiments on 5 cases of peptic ulcer and 2 controls In each case the continuous drip method gives a much better *control of the acidity than feeds given at* hourly intervals

The finding of a lower mean acidity on the two-hourly and light diets than on the hourly feeds may be explained by the fact that the former contain more protein, and that three of the meals are of larger bulk. The better neutralising power of larger protein meals is shown in fig 3 The patient, who had a duodenal ulcer, was first given two-hourly feeds of 10 oz of milk (*a*), and the acidity was reduced for 30–60 min. after each feed before returning to its previous level He was next given three full meals in the twenty-four hours (*b*), with intermediate hourly doses of 1 drachm of alkaline powder After the main meals the acidity was controlled for 2–3½ hours, but between meals the alkali, acting alone, produced little neutralisation.

TABLE V—MEAN FREE ACIDITY OF GASTRIC SPECIMENS OVER 24-HOUR TEST PERIODS IN *9* CASES OF PEPTIC ULCER WITH AND WITHOUT ANTACIDS

Diagnosis	Maximum free HCl F.T M.	Mean free HCl		
		Two-hourly diet	Two-hourly diet +mag trisil 1 drachm hourly	Two-hourly diet +Al (OH)₃ 1 drachm hourly
D U	88	37	45	—
"	63	49	38	—
"	39	62	54	56
"	82	62	58	—
"	100	60	45	—
G U.	42	28	34	40
"	36	36	22	18
D U	—	50	—	33
"	—	52	—	46

CONCLUSIONS

(1) Adequate control of the free acidity of the gastric contents in peptic ulcer associated with hyperchlorhydria cannot be obtained by hourly or two-hourly feeding, either with or without large doses of atropine or antacids

(2) The fact that hourly feeds of milk do not produce neutralisation is in large part due to the rapidity with which the milk is emptied out of the stomach

(3) Two-hourly feeds of a mechanically non-irritating type containing more protein are superior to hourly feeds of milk or milky foods in the control of gastric acidity Accordingly, for this reason and for the obvious benefit for both patients and nursing staff, it is suggested that two-hourly feeds should replace hourly feeds in the treatment of peptic ulcer.

(4) Atropine should be used only when pain and symptoms suggesting pyloric spasm are present. Its routine administration in the absence of such symptoms is unnecessary, because of its failure to influence gastric secretion. When it is given, the small doses usually recommended should be replaced by larger doses, sufficient to produce pharmacological effects —e.g., gr. 1/50 followed by gr 1/100 every four hours until the limit of tolerance is reached

(5) The above findings, together with the well-recognised fact that the symptoms of ulcer may disappear quickly with or without dietary restrictions, suggest that the importance of free acid in the stomach in interfering with the healing of ulcers has been overemphasised Palmer (1930) has shown that healing will take place in spite of experimental efforts to increase the acidity

TABLE VI—MEAN FREE ACIDITY OF GASTRIC SPECIMENS OVER 24-HOUR TEST PERIODS ON MILK

Diagnosis	Maximum free HCl F T M	Milk 5 oz hourly 7 A M –10 P.M			
		By mouth		Continuous intra gastric drip	
		During admin of milk (16 hr)	During 24 hr	During admin of milk (16 hr)	During 24 hr
D U	40	19	26	0	8
"	78	43	54	20	18
"	74	60	55	20	48
"	75	52	40	10	18
G U.	26	22	23	5	5
Control	?	24	27	8	9
"	26	12	10	6	4

(6) Finally, it is concluded, from evidence which will be published later, that the attainment of physical and psychological rest is of more importance in obtaining healing of ulcers than any rigid dietary regimen or the use of alkalis and atropine.

I wish to express my indebtedness to Prof L S P. Davidson, at whose suggestion the greater part of this work has been carried out, and to thank him for much helpful advice and criticism.

REFERENCES

Hurst, A F, and Stewart, M J (1929) Gastric and Duodenal Ulcer, London
Palmer, W L (1930) *Arch intern Med* 45, 165
Sippy, B W (1915) *J Amer med, Ass* 64, 1625

PROGNOSIS IN RABIES

By J H JORDAN, M B Camb, D.P.H
COMMISSIONER OF PUBLIC HEALTH, SHANGHAI MUNICIPAL COUNCIL

THE worker in an antirabic institute frequently finds himself at a loss when anxious patients ask how soon they can forget the haunting dread of a fearful death from rabies Some years ago I was asked this question, and found myself in a quandary No information appeared to have been collected along these precise lines Diagrams were therefore prepared to help in providing a solution. I used the statistics collected at the Shanghai antirabic institute

The answer to the anxious patient's question is provided by the chart (upper section) The vast majority of deaths in treated cases occur before the sixty-fifth day after the bite and most of them before the fiftieth. It is interesting to note that in dogs the most likely time for rabies to develop is about the fortieth day after the bite

A few deaths in untreated persons have also been reported to the department and these are recorded graphically in the chart (lower section) There are apparently two periods of greatest risk in untreated cases. There is a definite peak in the death-rate on the thirtieth day in both treated and untreated cases, but there is a second peak on the sixtieth day in the untreated cases One cannot help wondering whether this second peak of deaths among the untreated persons represents those who would have been saved had they received treatment.

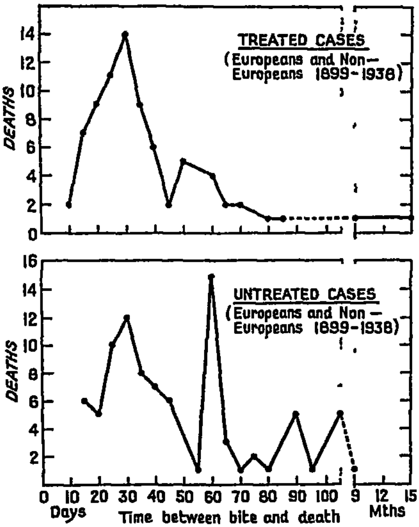


Chart showing the time at which death took place in fatal cases, treated and untreated

A study of the chart shows that it is possible progressively to reassure one's patients as the time from the bite becomes greater, and after three months the chances of the disease developing are minute

From 1899 to 1924 patients in this institute were treated by the dried cord methods From then on, the Semple vaccine was used The cord treatment was given to 963 patients, but of these 163 were *precautionary treatments only* *Therefore only 800* patients were "true" risks The Semple treatment was given to 5543 patients, of whom 2972 were "true" risks The percentage mortality in successive groups of 800 patients is shown in the table, it also shows a higher mortality than that claimed by many other institutes but the Semple treatment compares favourably with dried cord treatment It was at one time claimed that the Shanghai rabies virus was more virulent than in other countries, but it is not really necessary to bring forward such a solution I think the principal reason for the higher mortality in Shanghai is the time that is allowed to elapse before patients present themselves for treatment

TABLE SHOWING RESULTS OF DIFFERENT TREATMENTS

—	Method of treatment	Mortality (%)
1st 800 patients	Cord	4·0
2nd ,,	Semple	2·0
3rd ,,		1·75
4th ,,		1·25

The variety of wounding has a considerable bearing on rabies prognosis Of the severe head and neck wounds, 24 2 per cent died under the dried cord treatment and 18 8 per cent under the Semple treatment Of severe body wounds and slight head and neck wounds, 6 6 per cent died under the dried cord treatment and 3 9 per cent under the Semple treatment Of the slight wounds, 0 8 per cent died under the dried cord treatment and 0 9 per cent under the Semple treatment

The figures on which this study is based are admittedly small, but they are published to give a rough and ready prognostic guide to those giving antirabies treatment, and in the hope that those with larger series available will be prompted to provide more reliable data

REVIEWS AND NOTICES OF BOOKS

Fifield's Infections of the Hand

(2nd ed) By PATRICK CLARKSON, F R C S, surgical tutor and demonstrator of anatomy and operative surgery, Guy's Hospital, London London H K Lewis and Co 1939 Pp 167 9s

FIFIELD's book appeared in 1926 and was immediately popular, for it supplied a want that was then only too obvious—a lucid manual of the septic hand for students, house surgeons and practitioners That is not forgetting Kanavel's classic monograph, to which the author gives full credit Now within the modest space of 167 pages, Mr Clarkson presents in readable form all the essential points The first chapter provides the basic anatomical knowledge without which no infection can be understood or treated In this section brevity has occasionally obscured the meaning, and there are one or two slips in terminology, such as metacarpi for metacarpals and pisiformis for pisiform These faults are not found in the later chapters, which deal in turn with the anatomical varieties of infection, their treatment in detail and their complications modern methods such as the use of sulphonamides and short-wave therapy receive proper notice The final chapters on general treatment, and on insurance aspects and prognosis are particularly valuable The book is freely illustrated with coloured plates and line drawings The price is very reasonable

Chirurgie de la main

(3rd ed) By MARC ISELIN, chirurgien de l'hôpital Américain, Paris Paris Masson et Cie Pp 320 Frs 65

Dr. Iselin came across a copy of the second edition of his work in a library and discovered that the sections dealing with wounds and infections of the hand had been freely read, while the section dealing with reparative surgery had hardly been fingered For this reason he presents the third edition in two parts the first dealing with wounds, infections and closed injuries, the second, to appear later, dealing with reparative and plastic surgery of the hand In this first part he has added chapters on fractures of the hand and fingers (modelled on the work of Bohler), a chapter on evaluation of incapacity, a chapter on trophic and painful lesions of the hand (after Leriche and Fontaine), and he has remodelled the chapters on open fractures and the prevention of tetanus The book opens with a homily on wounds, stressing once again the all important fact that most hand infections can be prevented by careful and proper attention to cleansing and debridement of all wounds It deals in turn with wounds of the fingers, of the thumb of the palm and of the dorsum It passes next to a detailed study of infections, both localised and diffuse, and the proper treatment for each The chapter on tenosynovitis is especially to be commended for it describes and criticises the various incisions that have been practised by different surgeons, and points out the value of short incisions placed opposite the more bulbous and thinner parts of the sheaths Infections of palmar spaces receive adequate anatomical and clinical study. The addition of a section dealing with fractures and dislocations is appropriate, for these injuries are often regarded as unimportant.

The whole book can be strongly commended, as it is dedicated, to students, practitioners and surgeons.

Yearbook of Neurology, Psychiatry and Endocrinology

Edited by HANS H. REESE, M.D., professor of neurology and psychiatry, university of Wisconsin medical school, HARRY A. PASKIND, M.D., Ph D., associate professor of nervous and mental diseases, Northwestern University school of medicine; and E L. SEVRINGHAUS, M.D., professor of medicine, University of Wisconsin medical school Chicago: The Year Book Publishers; London: H. K. Lewis and Co. 1939. Pp. 776 12*s*. 6*d*.

THE compilers of a work of this kind must be at once anthologists, abstracters and critics, and the editors have here faced their task with commendable discretion and catholicity. The neurological section has been skilfully chosen. At times Professor Reese refrains from adding comment where it is needed—e g , after his lengthy extract of a recent paper by Panegrossi on the Bulgarian treatment of epidemic encephalitis or that of E L Stern about subarachnoid injection of vitamin B_1; but his abstracts are informative and his notes on them terse and pointed. Surgical procedures are duly included, as in the chapter on the automatic nervous system, and the section is generously illustrated. The psychiatric section is excessively diffident It is less than half the length of either of the others yet nearly as much space is given to the insulin and cardiazol treatment of schizophrenia as to all the rest of psychiatry. Only four articles on the psychoneuroses are abstracted. Many readers will sympathise with the editor in his manifest distaste for verbose or vague papers, but in the present state of the subject his selection is so personal as to give rather an unbalanced picture. It would be less so if he included papers with a psychological bias, adding editorial comment in a footnote The proportion of papers from the United States, Germany and Great Britain is approximately 4 . 2 : 1

Practical Bandaging

(5th ed) By ELDRIDGE L ELIASON, M D., F.A C S, professor of surgery. University of Pennsylvania London: J. B. Lippincott Company Pp 128 7*s* 6*d*

THIS little book provides much practical information which would be of value to nurses and orderlies as well as to the many part-trained individuals who may be called upon to help in the treatment of injuries. It hardly gives enough detail for the house-surgeon about the less common forms of technique, though it refers to many orthopædic expedients The illustrations, both in line and half-tone, are numerous and very clear, and all the classical forms of bandaging are described; hence the book would be helpful for a first-aid examination, while its practical value is enhanced by the author's comments on points and modifications evolved during use Indications for the various types of bandage have been deliberately omitted. There is a good section on adhesive-plaster technique, which is even more widely used in the U.S A than here. The section on plaster-of-paris is a little disappointing; there is a lack of guidance about application, the advantage of stockingette over flannel for lining the splint is not referred to, and the plaster-cutters illustrated are not nearly so efficient as Stille's, nor is the useful key-hole saw mentioned The photograph of plaster splints show crude types in poor position—e.g., the walking-pattern is applied at a tilt that would make walking difficult. Despite these minor defects the book can be recommended for its purpose as a useful addition to the nurse's library.

The Living Body

A Text in Human Physiology By CHARLES HERBERT BEST, M.D , D Sc Lond , F.R C.P. Canada, F R.S , professor and head of department of physiology in the University of Toronto ; and NORMAN BURKE TAYLOR, M D., F.R C S E , F R C.P Canada, professor of physiology in the university London: Chapman and Hall. 1939. Pp. 563 18*s*

THIS concise work, written primarily for students not taking a medical course, realises the expectations raised by the larger book by Best and Taylor on the *physiological basis of medical practices* The text is clear and dogmatic, and covers the field almost completely, for brevity has been attained at the expense of depth rather than extent Medical students should use the book only, as is suggested in the preface, to gain a bird's-eye view of the subject, and should not be deceived by the excellent diagrams, many of which are in colour, or by the correctness and up-to-dateness of the text, into thinking that this is all they need. That part of the background of physiology which is the most puzzling for the non-medical student, and which consists chiefly of the anatomy and histology of the organs, is adequately treated and skilfully illustrated, and the book provides an authoritative text for a class of student too often overlooked.

Hypertension and Nephritis

(4th ed.) By ARTHUR M. FISHBERG, M D., associate in medicine, Mount Sinai Hospital, New York City. London · Baillière, Tindall and Cox 1939. Pp. 779 37*s*. 6*d*.

THE appearance of a new Fishberg is a notable event, for it has become the standard English textbook on nephritis and hypertension The clarity of writing, the lucid reasoning and the scholarly survey of the literature are repeated once more, and one's only word of regret is that the author has found himself obliged to increase its size by a hundred pages so that it is now a really big book. The most notable additions are a study of the experimental production of hypertension, and a section dealing with the mercurial diuretics Omissions now filled are a description of the skeletal changes in chronic renal failure and the paroxysmal hypertension associated with certain adrenal tumours. Dr Fishberg is to be congratulated on the practical character of his book, which, if its appeal be first and foremost to the more specialised physician, remains a volume which can be read with interest and profit both by the student and the family doctor.

The Diabetic's Vade Mecum

By O LEYTON, M.D. Camb , F R C P London John Bale, Sons and Curnow 1939 Pp 41 2*s*. 6*d*.

THIS small book by the late Dr. Otto Leyton contains all the essential things a diabetic should know in a very few pages. It is set out in the clear style characteristic of the writer.

THE LANCET

LONDON SATURDAY, OCTOBER 21, 1939

THE SEARCH FOR TRUTH

THE growth of science has influenced the course of men's lives in two directions It has given man greater power over the resources of nature and thus has raised his standard of material living, this is a direct result of discovery and of the application of knowledge Its indirect result, a more general use of rational thinking, has been no less important though less spectacular, perhaps because its influence is slower The great discoveries of NEWTON, though immediately only concerned with the laws of motion and physical force, by their simplicity and range united in men's thought the structure of the universe, what was true of a candle's beams must also be true of light from the sun and the most distant stars There are no islands of autonomous local truth in a dividing sea of chaos, but one rule of law stretching to the boundary of human discernment and beyond it The indirect effect of the realisation of the unitary character of the universe was a confidence in reason in the face of the ever-prevalent human tendency to superstition, that expression of distorted emotional thinking The spanning of the stretches of interstellar space by man's measuring devices strengthened his belief in the active power of his mind so that it did not quail before the apparently more elusive mysteries of his mental life The realm of magic and superstition was attacked with a self confidence previously lacking and, in the age of reason, blind wonder at the terrifying incomprehensible gave place to a determination to clarify and map out if only by slow stages, this last remaining *terra incognita*—man's too emotional ways of thought

In the crisis now affecting us in the infancy of our civilisation we may perhaps learn something from the early development of science We in England, and our colleagues in Germany, are faced with an enigma which each in his own way tends to answer with wishful thinking—what is going on in the mind in enemy countries Between them and us stretches that most terrible of all barriers, a war frontier The first assumption we have to make, if that gap is to be bridged, is that the laws of mental life in that unknown land are, like the physical laws, exactly the same as ours It is a difficult assumption because as a result of war we are led all too readily to the illusion that the enemy on the outbreak of hostilities loses something of his humanity whereas we do not The irrational notions we cherish during war, no doubt stimulated by the strain, are comparable to the emotional beliefs which the age of reason so largely dispelled from everyday life It would now seem to us odd if someone said that an individual was possessed of a devil, because we cannot believe that an individual is subject to other influences than those of heredity and environment—and this holds for his highest ideals as well as his most degrading ideas We neither exorcise the devil nor subject the possessed to torture, but study his mind and the forces which moulded it This we can do because we believe in the constancy of mental reaction as we believe in the constancy of physical reaction With nations it calls for an effort to retain the same objectivity which we now ordinarily apply to single human beings

With the widening of the range of subjects to which we apply reason there is of course a narrowing of the fields in which our phantasies have free play, and one of these is nationality Perhaps the task of this generation, a task thrust upon us all too quickly and forcibly by the rapidity and power of mechanical invention, is to clarify the emotional and political issues—they are surely inseparable—of our communal life as this affects us both as individuals and as nations Political thought in Europe today revolves round two major issues, nationality and the regulation of economic life No nation now facing a crisis can consider these matters solved nor can any of them impose their own solution upon another group with any prospect of permanence and success A realisation of this should strengthen us to resist the egoism and ambition of tyrants, as it should also humble us before the no less gigantic task of fashioning the terms of armistice and peace

The boundaries of our social and economic life are dissolving away as a result of man's increasing control over the forces of nature, the facility of contact in peace and in war will be a sorry gain if the minds of the nations are not prepared to consider the new responsibilities which improvement in communications inevitably brings in its train Sooner or later, if the horror of war is not to devastate the whole of our civilisation the nations will have to recognise that they cannot live in cultural islands of their own devising separated by troubled seas of ignorance and suspicion, but will have to plan on a new basis for an era of neighbourliness The recognition of the universality of natural law has two phases, that of matter and that of mind An exclusive application to the first has imperilled civilisation only application to the second will save it We should no longer trust to the often blind and too often destructive guidance of our feelings, especially when we have power in our hands Man's spirit has risen to great heights of constructiveness and some of his works bear the stamp of eternity and truth Our precious heritage of culture calls not only for valour in arms for its protection but courage to refashion it as our increasing knowledge of our human weakness discloses the causes of the defects in its structure The search for truth gives man fortitude and the reward of those who seek it is peace

THE CONTROL OF TETANUS

THE likelihood of our land and air forces soon being engaged in large-scale operations brings into prominence again those bacterial infections which are more common on the battlefield than in civil life. Among them is tetanus, though why this infection should follow war-wounds so much more often than it does road-accidents is difficult to explain Contributory factors are a badly lacerated wound with hæmorrhage and necrosis of tissue, contamination of the wound with a richly manured soil containing ionisable calcium salts as well as tetanus spores and the toxins of other anaerobes, acting singly or together these lower the oxidation-reduction potential of the tissues and so allow free germination of the tetanus spores There is, besides, the risk of infection from imperfectly sterilised dressings

In the last war prophylactic injection of antitetanic serum was introduced in October, 1914, and the incidence of tetanus dropped from 9 per 1000 wounded to less than 1 in 1915; it rose again in 1916, probably because of the more accurate diagnosis of local tetanus, and fell again to less than 1 per 1000 in 1917 and 1918 The second fall coincided with a more general adoption of the early excision of wounds and the introduction of repeat-injections of A T.S. Not only was the incidence greatly reduced, but among cases developing tetanus the incubation period was lengthened from an average of 11 8 days in 1914 to 48 days in 1917 and the severity of infection diminished, the fatality-rate being 22 6 per cent. in the inoculated and 53 3 per cent in the uninoculated The proportion of local tetanus also rose from 1 1 per cent in 1914 to 23 4 per cent in 1917 These figures, given by BRUCE,[1] show that while prophylactic A.T.S has accomplished a lot, it does not, as used in the field, give absolute protection against tetanus, and there are the additional drawbacks of serum-sickness and serum-shock from repeated injections of a foreign protein Recent years have seen the introduction of active immunisation, chiefly by the use of formol-toxoid ("anatoxin" of the French writers) This method of protection has long been used for the prevention of equine tetanus and for several years a combined active and passive immunisation has been employed for wounded soldiers in the French army. Over a year ago active immunisation was offered to regular troops of the British army[2] and since then a similar procedure has been adopted by the R A F It is to be hoped that such immunisation, which can be combined with inoculation of T.A.B vaccine, will be made compulsory for all troops on foreign service The course consists of two 1 c cm doses of formol-toxoid at an interval of six weeks, and is calculated to raise the tetanus antitoxin content of the recipient's blood to 0 1–1 0 unit per c cm, a level which is more than adequate to prevent an attack of tetanus. After a time this level drops, sometimes rather quickly, and it may be advisable to give a further injection of toxoid after a, 2–5 years' interval. SNEATH and KERSLAKE,[3] for example, found that an injection given in the second year after immunisation raised the antitoxin content of the blood 10 to 500 times that of the residual level But it is expected that any incipient tetanus infection would itself act as the secondary stimulus, although the French advocate an immediate injection of toxoid for the freshly wounded and already vaccinated soldier[4] If the patient has not been vaccinated, he should receive first 1 c cm of tetanus toxoid followed by 3000 units of A T S. and then at 15 day intervals two further injections of toxoid RAMON even recommends active immunisation at 5–6 day intervals for the declared case of tetanus, besides a single massive dose of 150,000 units of antitoxin, now obtainable in much more concentrated form The serum should be given intracisternally, intravenously and intramuscularly, as well as subcutaneously round the wound

It is perhaps a sidelight on the present status of medical science in Germany that at two recent discussions[5] on the prophylaxis of tetanus by bacteriologists and surgeons only one speaker dealt with active immunisation and then without giving any evidence of its clinical use. Early and thorough excision of the wound was generally recommended, with weekly injections of prophylactic A T.S in severe cases Using these methods SCHNEIDER[6] observed only 4 cases of tetanus among 40,000 injured people in Freiburg where tetanus is not uncommon No doubt the proper surgical treatment of war-wounds will still be necessary in the prevention of tetanus, but as far as specific prophylaxis is concerned the immediate future promises another instance of "off with the old and on with the new"

ECONOMICS OF A DECLINING POPULATION

AN eventual decline in our population seems certain unless it is stemmed by an unlikely increase in fertility or by immigration on an unprecedented scale When the fall will begin is less clear, since prediction depends on forecasts of the fertility, age-specific mortality and immigration rates, which have departed from expectation in recent years The work of GLASS and BLACKER, ENID CHARLES and GRACE LEYBOURNE has shown how this trend will be associated with radical changes in the age-distribution of the population Some of the implications are fairly obvious and point the way for planning future social services If any area now has sufficient school accommodation it will soon have too much, and the same applies to playing grounds and hospitals for children, school clinics and maternity and child-welfare centres. But measures for preserving the lives and health of children and mothers will be all the more necessary, and they will have to be extended in quality if not in quantity On the other hand, the actual, and not merely relative, rise in the number of people over forty five, which will continue for many years, will present some difficult health problems, complicated by the probability that this group will also eventually diminish For some years the demand must increase for curative or palliative provision for the aged, who have hitherto received little organised and enlightened consideration A relatively stationary working population will then be *faced* with new costs, and few tangible economies to offset them Will this mean a progressively poorer community, paying for the services necessary to stave off a still more evil-day only by denying itself other amenities of life? Mr W B REDDAWAY [1] gives a provisional but not a definitive answer

---

[1] Bruce, D, *J Hyg, Camb.* 1920 19, 1

[2] Boyd, J. S K, *J. R Army med Cps,* 1938, 70, 308.

[3] Sneath, P A T, and Kerslake, E J, *Brit med J* 1935, 2, 921

[4] Ramon G, *Pr. méd* 1939, 47, 877 and 981

[5] *Klin. Wschr* June 16, 1939

[6] Schneider, H., *Dtsch med Wsch* Aug 11, 1939, p 1261.

Economic prosperity depends on innumerable material and some psychological variables In Mr REDDAWAY's view the major peace time barrier to economic advancement is the occurrence of slumps, or, what may be conducive to them, the fear of slumps among those controlling capital If we can find means of anticipating and fore stalling catastrophic drops in the trade cycle, the amount of capital, the income per head, and therefore the standard of living, should rise Population changes may make it more difficult to keep down unemployment generally, and more especially the particular unemployment arising from technical revolutions or fickle changes in fashion, for an older population is less adaptable An immediate raising of fertility, accompanied by the present increase in old people, would merely add to the numbers of dependants, and can therefore hardly be advocated on economic grounds alone

Mr REDDAWAY suggests that planning can obviate economic crises and that a planned economy is urgently needed, irrespective of the new factor introduced by a falling population Unemployment is a man-made problem which man ought to be able to solve But there are two provisos Mr REDDAWAY ignores the more gloomy prognostications which foretell a *rapid fall in* numbers towards the end of the century until we are left with some five millions in 2035 The implications of such a decline cannot be foreseen The other is of fundamental importance and affects the whole argument Writing before September 1939 he says, "Avoid wars, for these are the creators of all major debts Indeed, a major war would simply make our whole discussion of public finance (if not the whole of this book) virtually irrelevant" Even more than when these words were written, a falling population appears to be a minor factor in the economic problems with which we shall be faced The war may intensify the need for efficient public health and medical services and at the same time destroy many of those who would have contributed to their maintenance It will probably accelerate the decline in fertility In any case the burden of debt is likely to be so heavy that the future of the social services may be jeopardised unless some new solution, such as a compulsory and automatic depreciation of all capital, can be found

ANNOTATIONS

UREA TREATMENT OF WOUNDS

THE time has come for a change of ideas about urea it must no longer be regarded merely as a rather undesirable end product of metabolism, but also as a therapeutic agent of some value Urine has long been applied to wounds by poor people in backward countries, but the possible use of urea in scientific medicine was not considered until Spiro [2] showed, about forty years ago, that it has a powerful solvent action on protein In 1915 Symmers [3] found that urea is bactericidal and Kirk [3] used it with success in the treatment of wounds, both to prevent and to cure local infection For some time after this the method seems to have fallen into disuse, but it has lately been revived in America The latest report is by Holder and Mackay [4] who, after more than two years' experience, are convinced of the value of urea in the treatment of infected wounds They apply it in one of three forms as a *saturated aqueous solution*, *as a* paste (containing 50 per cent urea and 2 5 per cent karaya gum), or as crystals Generally speaking the crystals are to be preferred, but their disadvantage is that they "cake" in the wound and are difficult to keep in close contact with the tissues. The solution is used for irrigating cavities and sinuses Sometimes the application of urea to a wound causes pain, but this can be prevented by adding Eucupin in a concentration of 0 5 per cent To illustrate the success of their method Holder and MacKay describe five representative cases comprising an empyema, a necrotic pilonidal cyst, an infected burn, a severely crushed and lacerated foot and a similarly wounded hand In all of these the sloughs rapidly disappeared and healthy granulation tissue developed Equally satisfactory results have been reported by Muldavin and *Holtzmann* [5] *who used the method in 170 cases in the* casualty department of the Royal Free Hospital The advantages of the urea treatment may be summarised as follows it is effective, it is cheap, it rapidly abolishes odour it does not irritate the wound or cause dermatitis it is not toxic. Holder and MacKay's paper raises a question of terminology that deserves comment It appears that a reviewer of one of their reports suggested that as the word urea is associated in many minds with urine its synonym carbamide should be used instead An additional reason given for the change is that urea is now prepared synthetically Yet it seems a pity that Holder and MacKay have adopted the suggestion Even if it is agreed that the association of the word urea with urine is undesirable (and many would not agree) it does not justify the addition to medical terminology of yet another unfamiliar word Moreover, urea has been synthesised for more than a century

Another successful if exotic treatment of infected wounds is by means of maggots, and it is interesting that there may be a close relation between this method and urea therapy. The active principle by which the maggots work is supposed to be allantoin, and allantoin has been found to produce urea when hydrolysed. May it be that these two very different methods of treating wounds—the one complicated and expensive, the other simple and cheap—are at root the same?

---

[1] The Economics of a Declining Population By W B Reddaway M A Camb London George Allen and Unwin Ltd 1939 Pp 270 8s 6d

[2] Spiro K *Hoppe Seyl Z* 1900 30 182

[3] Symmers W St C and Kirk T S *Lancet* 1915 2 1237

[4] Holder H G and Mackay E M *Ann Surg* July, 1939, p 94

[5] Muldavin L E and Holtzmann J M *Lancet* 1938 1 549

BABIES CHOOSE THEIR OWN MENUS

CHILDREN evacuated from towns to country districts often dislike the wholesome food put before them, preferring the tasty but less satisfactory "bits and pieces" to which they have been accustomed at home. This question of children's food-fads has been the subject of further experiment in Canada, described by Clare M. Davis[1] before the section of pædiatrics of the Canadian Medical Association this summer. The choice here, however, was not between wholesome and not-so-wholesome food but between different items of wholesome food, and the report is concentrated on the effects on the children rather than on what food they preferred One outstanding fact about their preferences is that after a period of trial and error they all rejected cereals as a predominant element in their nutrition.

Babies aged 6–11 months, who had never tasted the ordinary foods of adult life, were allowed to select their own diet. The nurse sat quietly, spoon in hand, by the infant and waited for him to reach for or point to an item of food. A spoonful of it was then offered without comment The infant was allowed anything he indicated in any amount He might eat with his fingers or by any other method without restriction. When he stopped eating, usually after 20–25 min, the tray was removed Thirteen babies were allowed to choose their food in this way for periods ranging between a year and 4½ years, and the remaining two babies for not less than 6 months The whole group was afterwards followed up for 6 years Careful examination, including blood-counts and radiography of the bones, has shown an optimal standard of nutrition No cod-liver oil or any dietary adjuvant was offered to the infants, all of whom had healthy appetites throughout, and there was no constipation and no serious illness during the 6 years. Vomiting and diarrhœa were unknown, except in the presence of parenteral infections, and these were mild Lest Dr Davis might be thought too enthusiastic about her experimental troupe, she quotes Dr. Joseph Brennemann's opinion of them as "the finest group of specimens from the physical and behaviour standpoint that I have ever seen in children of that age" The average daily intake of calories per kg of body-weight and the distribution of calories among the chief constituents of the diet were in accord with accepted views

The diets chosen were therefore on orthodox lines, although the children did not show any orthodoxy and their daily menu was completely at variance with pædiatric practice Every diet differed from every other diet, and not one diet conformed to the predominantly cereal-and-milk diet, with small additions of fruit, egg, and meat, that is considered suitable at the weaning period Moreover, tastes varied from day to day, and combinations of food were chosen which are described as a "dietician's nightmare" For example, one infant chose a breakfast of a pint of orange-juice and liver. He ended the day with a supper of several eggs, bananas, and milk. The infants chose their food by a process of trial and error. There was no evidence to suggest that instinct directed the choice. Random shots often indicated a spoon, dishes, the edge of the tray, or the paper on it as the desired food. Any extension of the method is open to the objection that errors may have a disastrous result, as when a child applies the experimental method to poisonous but attractive berries. This risk was excluded by the nature of the menu, which was confined to natural, unprocessed, and unpurified foods, without "made dishes"—the sort of diet which primitive peoples have evolved for themselves with satisfactory results. To call the experiment one on self-selection of foods by young children is misleading, for the infants were restricted to a choice made from thirty-four carefully selected items, as can be seen from the following list:

Water
Sweet milk
Sour (lactic) milk
Sea salt (Seisal)
Apples
Bananas
Orange-juice
Fresh pineapple
Peaches
Tomatoes
Beets
Carrots
Peas
Turnips
Cauliflower
Cabbage
Spinach
Potatoes
Lettuce
Oatmeal
Wheat
Corn meal
Barley
Ry-Krisp
Beef
Lamb
Bone-marrow
Bone jelly
Chicken
Sweetbreads
Brains
Liver
Kidneys
Fish (haddock)

The value of this method is summed up by Dr. Davis thus · "It eliminated anorexia and the eating problems that are the plague of feeding by the dosage method."

SURGERY IN ULCERATIVE COLITIS

ULCERATIVE colitis is characterised by its tendency to relapse and consequent indefinite prognosis In chronic cases the early stages of ulceration of the mucous membrane of the colon are followed progressively by partial healing and contraction, with shortening of the bowel, narrowing of the lumen, mucosal destruction and pseudopolypoid degeneration. Unfortunately there is no specific remedy, and intestinal antiseptics are unavailing Medical treatment consists of high-calorie, high-vitamin, low-residue diets, intestinal irrigations and in anæmic states blood transfusions and iron Recently, the factors of nervous strain and anxiety in initiating and perpetuating the complaint have been brought prominently before the profession, and psychological treatment has been advocated In his opening address before the section of surgery at the 90th annual meeting of the American Medical Association, Dr. Henry W Cave[1] points out that many of these measures are followed by temporary improvement ; on the other hand relapse is common and in many cases the disease continues progressively Surgical measures must therefore be considered and should not be left till too late Dr. Cave's clinical material consists of 158 cases of ulcerative colitis treated at the Roosevelt Hospital, New York ; 27 of them have been subjected to surgical intervention These cases had failed to respond to conservative treatment and could be described as chronic intractable ulcerative colitis Dr. Cave is sceptical of the value of appendicostomy, cæcostomy and colostomy as curative measures The purpose of these openings into the bowel is to irrigate the colon in the hope that some antiseptic solution would destroy invading organisms and so effect a cure In view of the actual pathological condition that exists, these three procedures are regarded as theoretically unsound and ineffectual in practice Complete removal of the diseased bowel is essential to effect cure All appropriate medical measures are used in the preoperative preparation and the removal is accomplished in two, three or even four stages, the complete removal of the colon and rectum requires three or four operations, ileostomy, subtotal colectomy and proctectomy After subtotal colectomy the majority of the patients improved to such an extent that doubt arose whether and when the rectum should be removed When bloodstained mucus continues to be passed or there is inflammatory involvement in the perirectal space, with or without fistula, it is preferable to perform proctectomy

---

[1] Canad med Ass J September, 1939, p 257

[1] J Amer med. Assoc. Aug 12, 1939, p. 549

Of the 158 patients treated, with a gross mortality of 7 per cent, six patients died while under medical supervision, a mortality of 3 7 per cent Of the 27 patients operated upon, five died, giving an operative mortality of 18 5 per cent A control series taken from other hospitals showed a mortality amongst the medically treated of 10 1 per cent, and an operative mortality of 30 8 per cent It may be noted that the operation cases were those, often desperately ill, whose condition could not be controlled by medical management Surgical intervention is called for in perforations, repeated hæmorrhages, strictures and for diffuse polyposis If the colon and rectum are involved only on the left side, transverse colostomy (in the healthy part of the bowel), with removal of the remainder of the colon and the rectum, is justified, if the whole colon is diseased, ileosigmoidostomy followed by subtotal colectomy is needed, the rectum being removed later if involved Dr Cave concludes that operation offers more than a continuation of medical treatment, in spite of a mortality of about 20 per cent a figure already lower than earlier published results, which placed the operative mortality at 50 per cent In these septic and often semimoribund patients much may be done by teamwork and judgment limiting each operative procedure to an amount which the patient can bear

GLUCOSE AND INSULIN IN ACUTE ALCOHOLISM

ALCOHOL seems to be got rid of from the body by a combination of excretion and oxidisation, but mostly by the latter The alcohol content of the blood can be reduced by excessive ventilation of the lungs and by the ingestion of food Many authors have suggested that there is a relation between the oxidisation of alcohol and that of glucose and Goldfarb, Bowman and Parker[1] have now published some valuable data on the change in blood alcohol which results from increasing the amount of glucose oxidised in the body Their clinical material consisted of a number of intoxicated patients with a definite smell of alcohol in their breath One group were given 15 units of insulin subcutaneously, a second 50 c cm of glucose intravenously a third both of these remedies and a fourth were held as controls The blood samples were analysed by Abel s macro method In the group given insulin only the alcohol did not disappear more quickly from the blood than in the controls When moderately intoxicated patients were treated with glucose it made little difference, but in some severely intoxicated ones the average reduction was significantly greater than that of the controls Treatment with glucose and insulin brought about a greater fall in blood alcohol in patients suffering from both degrees of intoxication The clinical effect on the patients was similar The patients who received insulin alone all showed slight sweating and a fall in temperature Those who were mentally clear often complained of feeling hungry after two or three hours No significant changes were noted in the patients who had glucose alone, but those who were treated with glucose and insulin recovered consciousness in one-and a half or two hours Most of them could give a rational history at the end of two hours, and some showed adequate motor coordination in four or five hours The authors think it likely that the reason why the glucose alone did not usually accelerate the oxidation of alcohol was that the patients were in various stages of under nutrition and could not oxidise the glucose The injection of insulin, by insuring that the glucose was oxidised, accelerated the oxidisation of the alcohol The reduction ranged from 75 to 275 mg per 100 c cm in two hours, and they suggest that glucose and insulin may be an effective therapy for acute intoxication It has the advantage over carbon dioxide and oxygen in needing no special apparatus and taking up only a few minutes of the physician's time

CLAUDE BERNARD

Professor Carrel in his foreword to Dr Olmsted's life of Claude Bernard[1] hails him as the father of modern medicine In truth no one man can with justice deserve such an exclusive title No man's work is sufficiently independent of that of his immediate forerunners, or indeed of his contemporaries, for his discoveries to be separated and set apart on a pedestal, they are rather the milestones which mark a definite point from which further progress can be measured Professor Carrel claims that Bernard was the first to introduce a strictly scientific method into the study of medicine, but a similar claim could be supported for such men as Bacon William Harvey, or that great teacher, Boerhaave, who, as has lately been shown, demanded a full scientific training in chemistry botany and mathematics as a preliminary education for the future physician Claude Bernard was indeed, to vary the metaphor, a star of the first magnitude, but there are other stars no less brilliant in the long history of the development of medical science

Bernard's life and work are sufficiently distinguished to need no comparisons, he of right takes his place with his peers The son of a Beaujolais vinegrower, with what would now be considered and was then thought a poor education, and without any backing of wealth or patronage, he had yet by the age of 28 won for himself the position of assistant to Magendie, then the professor of medicine at the College de France At that time Magendie was almost alone in his devotion to the advance of medical knowledge by means of experiment and Bernard could have found no better or more sympathetic master For fourteen years the two men worked together and Bernard's growing reputation was fostered by the older man who rejoiced when dying to know that his friend and pupil was marked out to succeed him "My chair will go to you" he is reported as saying "With you I know it won't fall to a nincompoop" The next twelve years of Bernard's life from the age of 42 to 52, were the most productive period of his genius They were marked by the outstanding discoveries with which his name will always be associated the digestive function of the pancreas, the glycogenic function of the liver the vasomotor system and the action of various poisons, especially of curare At the age of 54 he was the outstanding scientific figure of France towering says Dr Olmsted, above his friend and contemporary Pasteur. Then his health began to fail and multifarious activi ties interfered with his productiveness At 65 he died and was honoured by a public funeral, the first ever granted to a man of science

---

[1] Goldfarb, W Bowman K M and Parker S J Clin Invest September 1939, p 581

[1] Claude Bernard Physiologist By J M D Olmsted M A (Oxf) Ph D Harvard professor of physiology University of California. London Cassell and Co 1939 Pp 218 15s

Dr. Olmsted has written a detailed account of Bernard's life and has added a careful examination of all Bernard's work, pointing out its originality, its errors, its splendid successes and its chief title to fame —the almost religious adherence to the true spirit of scientific research. The volume is illustrated with some interesting photographs and a coloured reproduction from Bernard's work on the pancreas It should help to make Bernard's achievements better known to a generation which has perhaps estimated him at less than his true worth.

LIGHT ON THE PROGRESSIVE HYPERPLASIAS

In announcing their ability to produce uterine and extra-uterine fibroids in guineapigs by injection of an œstrogen, Lipschutz and Vargas[1] questioned the precise nature of the tumours they had created. Growth of plain muscle and fibrous tissue was induced by the hormone and continued only so long as the injections were given. When administration ceased not only was growth arrested but cell proliferation regressed When simultaneously with the œstrin compound an antagonist—progesterone—was given tumours failed to develop[2] If, as recorded in our present issue, testosterone was injected with the œstradiol, a feeble tumorigenic response followed, and hyperplasia of both uterine muscle and mucosa was also prevented in adult castrated female guineapigs It is thus evident that induction, growth and regression of these fibroids can be controlled at will As we have already pointed out,[3] several queries arise out of these new facts Is this muscle-fibre proliferation of the same nature as true innocent neoplasia, and are human *fibromyomata also caused by an endocrine imbalance?* The morphological data so far available are insufficient to form a basis for comparison between the structure of these experimental tumours and human uterine fibroids. Are the former tissue tumours with organised stroma or are they merely cell proliferations? A common origin may be suspected on the ground that fibroids appear in women during the years when follicular ovarian function is active; in such patients there may well be an over-secretion of œstrin or absence of antagonising hormone, although we have so far only indirect evidence of this. Until the final answer to these two questions is known it is impossible to settle the question whether human uterine fibroids can be regarded as true autonomous new growths

Meanwhile the story of these curious guineapig tumours leads one to speculate on the nature of that other large group of progressive cell proliferations—the reticuloses Among these Hodgkin's disease is the commonest and best-known example, but a great variety are recognised This group, though characterised by apparent autonomous growth, is distinguished from true neoplasia by the way the disease spreads. there is a discontinuous focal development in parts or throughout the whole body. According to some[4] the lesion is essentially a progressive proliferation or hyperplasia of the reticulum which is stimulated to unceasing growth with or without differentiating Metastasis and infiltration do not occur in the non-malignant forms, but colonisation by cells takes place when free living cells, such as lymphocytes and myelocytes, are involved. The cause of this type of lesion is unknown and no attempt at experimental reproduction has yet been successful save in the case of the fowl leukæmias

This group of diseases is one which, because of its difficult histological structure, is liable to be ignored in experimental work. The effect on abdominal and uterine plain muscle of an endocrine imbalance in guineapigs suggests a method by which these other cell proliferations might be investigated

NARCOTIC DRUG TRAFFIC IN THE UNITED KINGDOM

H M. Government, like other governments (though not all) who are parties to the several international treaties dealing with the traffic in dangerous drugs, have furnished to the League of Nations a report for the year 1938 It would be well if all other governments could give an equally satisfactory account of the discharge of their contractual obligations The control of international trade by way of import certificates and export authorisations continues to work smoothly, and the internal control of manufactured drugs by way of licences, inspection of factories and supervision of persons authorised to possess and use dangerous drugs works effectively and without friction. The seizures of opium illicitly imported which were eight in 1937, were four in 1938, and the amount confiscated was 0·75 kg in the latter year compared with 0 79 kg in 1937. Illicit import of Indian hemp however was discovered in fourteen cases in 1938 again seven in the preceding year and the amount seized was 2 34 kg It is again reported that "addiction to narcotic drugs is not prevalent in the United Kingdom", of the 519 addicts known to the central office 273 were women and 246 men Of the total, 134 were members of the medical profession The drug employed by addicts was morphine in 78 7 per cent of the cases, heroine in 13 2 per cent and cocaine in 0 5 per cent. The possession of "prepared opium" is wholly prohibited, its use in this country being chiefly among Chinese nationals temporarily resident here In 1938 60,934 lb of opium was imported into Great Britain and 153,464 lb of coca leaves In the same year 11,918 oz of morphine and 1427 oz. of heroin were exported The report repeats the assurance, made in former years, that "the evidence was forthcoming of any organised illicit traffic in the United Kingdom"

THE FATE OF ŒSTROGENS IN THE BODY

The problem why diethylstilbœstrol has the same physiological activity as the natural œstrogenic hormones, to which it bears little chemical resemblance, is likely to yield a good crop of laboratory investigations The latest of these[1,2] tend to show differences rather than similarities between the natural and synthetic series in regard to their chemical behaviour in the body. In the first place, stilbœstrol remains deposited at the site of injection, and is slowly absorbed from this depôt, in this it differs from œstrone and resembles the esters of œstrone or of œstradiol, which have been used to obtain prolongation of the action of a single dose. Secondly, when the circulation has been entered, compounds of the stilbœstrol family—stilbene and diphenylethane derivatives—are recoverable from the urine in comparatively large amounts, whereas œstrone is rapidly inactivated and is largely broken down or transformed to less active products Means of mitigating the action of the natural hormone have long been elaborated by the body, but when the natural protective mechanisms for eliminating foreign compounds are applied to stilbene they result in the formation of the much mo highly œstrogenic 4 4′dihydroxystilbene Thus, by administering 4 4′-dihydroxy-αβ diethylstilbene (that is, stilbœstrol), we are getting under the guard of the body mechanism and giving it a compound against which it has not developed an adequate defence

---

[1] Lipschütz, A, and Vargas, L, *Lancet* 1939 1, 1313

[2] Lipschütz, A, Murillo, R, and Vargas, L, *Ibid*, Aug. 19, 1939, p. 420

[3] *Ibid*, 1939, 1, 1320; Aug 19, 1939, p 438.

[4] Robb-Smith, A. H T, *J. Path. Bact.* 1938, 47, 457.

[1] Stroud, S W, *Nature*, Aug 5 1939, p 245

[2] Zondek, B and Sulman, F, *Ibid*, Sept 30, 1939, p 596

AIR-RAID SHELTERS

A LARGE number of occupancy tests in A.R P shelters for factory workers have been carried out by the staff of Messrs J and E Hall of Dartford, with the assistance of medical and scientific advisers Two kinds of shelter were used, each capable of holding 50 seated people, one being of steel, completely below ground level, and the other of pre cast concrete, only partly buried The objects of the tests were to determine the length of time before discomfort began when all exits were completely closed, to determine the changes in the temperature and humidity in these circumstances, and in general to note any data of interest and any methods of improving the comfort of the occupants Apart from tests in the entirely closed shelters, the steel shelter was tested with an air filtration plant in operation, with the exits ajar (as they would be during a raid were no gas used), and with added oxygen and soda lime The types of shelter differed in two rather unexpected ways The completely limed steel chamber is more comfortable because the surface temperature of the walls is governed by the temperature of the surrounding earth The walls therefore absorb heat and keep the dry bulb temperature within comfortable limits, and moreover provide a cold surface on which expired moisture can be condensed On the other hand the walls of the concrete shelter seem to have absorbed carbon dioxide, *for the concentration after two and a half hours'* occupation was only 60 per cent of the theoretical value This, in the absence of any means of adding oxygen or subtracting carbon dioxide, might delay to an appreciable extent the onset of symptoms of carbon-dioxide poisoning The investigation brought no fresh facts to light, but it was none the less well worth the labour It demonstrated practically that shelters can be constructed which can be fully occupied, though completely sealed, for two hours without damage to the occupants, or indefinitely if the doors can be left ajar, if filtration plant is fitted, or if adequate amounts of oxygen are provided at hourly intervals and soda lime is continuously exposed The report, published by Messrs H K Lewis at 2s, brings together in a simple way much information valuable to builders of shelters and is a timely warning to the careless that for long occupation some form of ventilation or of oxygen enrichment is a necessity

POLIOMYELITIS VIRUS IN SEWAGE

THE virus of poliomyelitis has on several occasions been isolated by the treatment of human fæces with volatile antiseptics, and Professor Kling in Sweden has lately recovered from drinking-water a virus which appears identical with that of the disease[1] Now Paul, Trask and Culotta[2] have for the first time isolated the virus from sewage—at Charleston, South Carolina, where there was an epidemic of poliomyelitis from May to July this year Samples of sewage from the part of the town where most of the cases had arisen were inoculated intraperitoneally into six monkeys Two of the monkeys died of peritonitis and two of an infection of the abdominal wall but the remaining two developed poliomyelitis, and from one of them the virus was successfully transferred to another monkey Passage was not attempted in the other case because the monkey died on the third day of the disease

---

[1] See *Lancet* Sept 30 1939 p 733

[2] Paul J R Trask J D and Culotta C S, *Science* Sept 15 1939 p 258

HÆMATURIA WITH M & B 693

IN our correspondence columns Dr G A H. Buttle calls attention to the rarity of hæmaturia during treatment with M & B 693 in the cases reported from temperate climates as compared with the high incidence met with by Backhouse[1] in New Guinea In their account of 100 cases of pneumonia treated with this drug (now becoming a classic) Evans and Gaisford[2] saw no hæmaturia, and in their paper on 280 pneumonia patients treated in South Africa, *Agranat, Dreosti and Ordman*[3] *do not mention this* complication at all Romcke and Vogt[4] met with transitory hæmaturia in only 2 of their 342 collected pneumonia cases treated in Norway On the other hand, Robertson[5] described a brisk hæmaturia in a boy with pneumococcal meningitis treated at Hampshire County Hospital, and McCann[6] of Belfast found red cells in the urine on routine microscopical examination in 29 of 65 men with gonorrhœa treated with the drug Backhouse's findings were more definite in 109 New Guinea natives he reports gross bleeding in 5 and red cells in 8 more, in 11 of these the hæmaturia was accompanied by pain and in most the urine was scanty Gross bleeding with colicky pain has also been reported in Peiping by Snapper[7] et al and in the United States

The explanation of the bleeding seems clear M & B 693 is excreted partly as the free base and partly in the inactive acetylated form, and the hæmaturia arises from the trauma of crystals of the acetyl derivative, which is relatively insoluble in an acid medium The quantity acetylated in the rabbit is high, and it is easy to recover from the rabbit's urine considerable amounts of the crystalline acetyl compound if it is allowed to stand in an ice chest for some time In human beings, however, the proportion acetylated varies greatly in different subjects, but when it is large, mechanical irritation of the kidney is always a possibility, particularly in febrile states where the urine is concentrated and acid Backhouse was able to demonstrate crystals of M & B 693 derivatives in the urine of his cases, and Snapper and others have described actual renal calculi of the same constitution Buttle suggests that the climate of New Guinea would tend to lead to a low output of highly concentrated urine The complication is not a serious one, for the bleeding has usually been transitory, but its occurrence does emphasise the necessity for giving ample fluids and for reducing the acidity of the urine as far as possible when M & B 693 is being given, more particularly in hot climates

DR W ALLEN DALEY has been appointed medical officer of health for London in succession to Sir Frederick Menzies who is retiring on Nov 2

DR BEDFORD FENWICK senior consulting gynæcologist to the Hospital for Women, Soho and sometime editor of the *British Gynæcological Journal*, died in London on Oct 11 in his 85th year

We also regret to announce the death on Sunday of MR A T PITTS, who did much to enhance the prestige of dentistry in this country He was well known alike as dental surgeon to the Middlesex Hospital, teacher at the Royal Dental Hospital and scientific editor of the *British Dental Journal* He was aged 58

---

[1] Backhouse T C *Lancet* Sept 30 1939 p 736

[2] Evans G M and Gaisford W F *Ibid* 1938 2 14

[3] Agranat A L Dreosti A O and Ordman D *Ibid* Feb 11, 1939 i 309

[4] Römcke O and Vogt M D *Ibid* Oct 7 1939 p 775

[5] Robertson K *Ibid* 1938 2 724

[6] McCann J S *Ibid* July 8, 1939 p 103

[7] Snapper I et al *Chin med J* July 1939 i 1

THE NEW ENDOCRINOLOGY

A series of articles by Prof E. C DODDS, F.R C P., *director of the Courtauld institute of biochemistry at the Middlesex Hospital, based on lectures delivered at the British Postgraduate Medical School*

III—THE MALE SEX HORMONE

THE study of endocrinology as we know it is of recent origin, but observations relating to the male sex hormone were made in very early times From whatever motives castration in the human was effected, the results of the removal of the testis were noted, and the practice was deliberately extended to domestic animals. It is natural that efforts to counteract the results of castration should have been the first endocrinological problem to attract the attention of scientists

Despite this fact, until comparatively lately all such attempts ended in failure, and progress in knowledge of the testis has been slower than progress in knowledge of other endocrine organs This was mainly because the early workers expected testis-tissue to yield a high concentration of the male hormone, whereas it is now realised that, unlike other endocrine organs, the testis tissue contains the hormone in such low quantities that it is extremely difficult to detect

The first recorded attempt at testis transplantation is that of John Hunter, working on hens, in 1762; but it was not until the middle of last century that real evidence of an internal secretion was obtained, through the work of the German Berthold, who in 1849 demonstrated that he could induce comb growth in the capon by the injection of testicular material A Pézard further elaborated his work, and since that time the capon has been the test-object Various useful methods of quantitative assay based on the capon-comb-growth-reaction for the activity of androgens were established, following the work of U. C. McGee, and the discovery that men's urine is a good source of androgens prepared the way for rapid advances by the biochemist

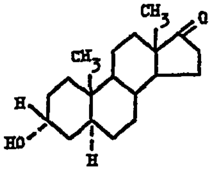


FIG. 1—Androsterone

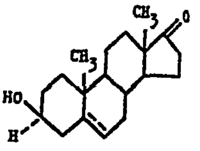


FIG. 2—Dehydro androsterone

The first really valuable series of experiments were those carried out by F C Koch and his collaborators in Chicago, who showed that an alcoholic extract of bull's testes will cause comb-growth in the capon

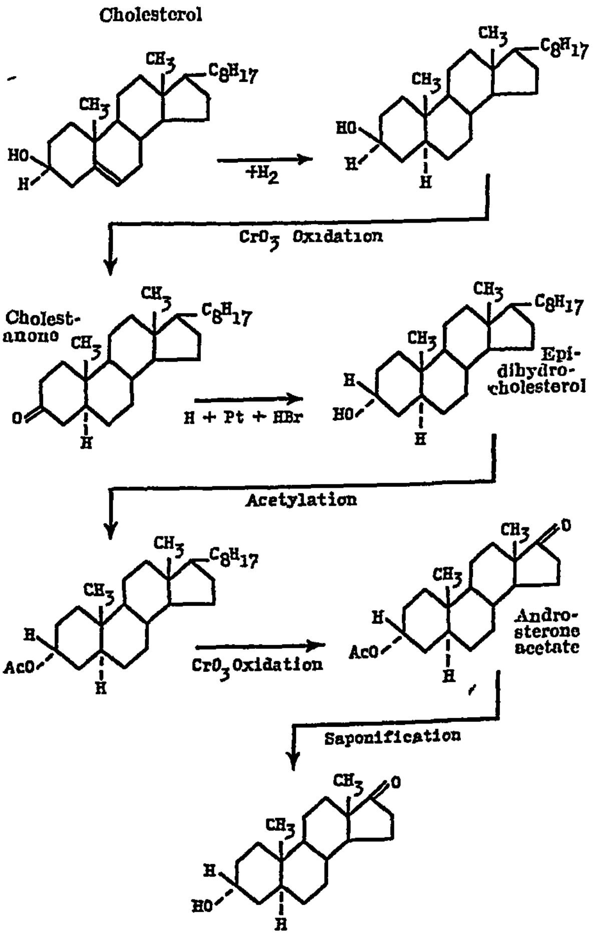


FIG 4—Preparation of androsterone from cholesterol (Ruzicka)

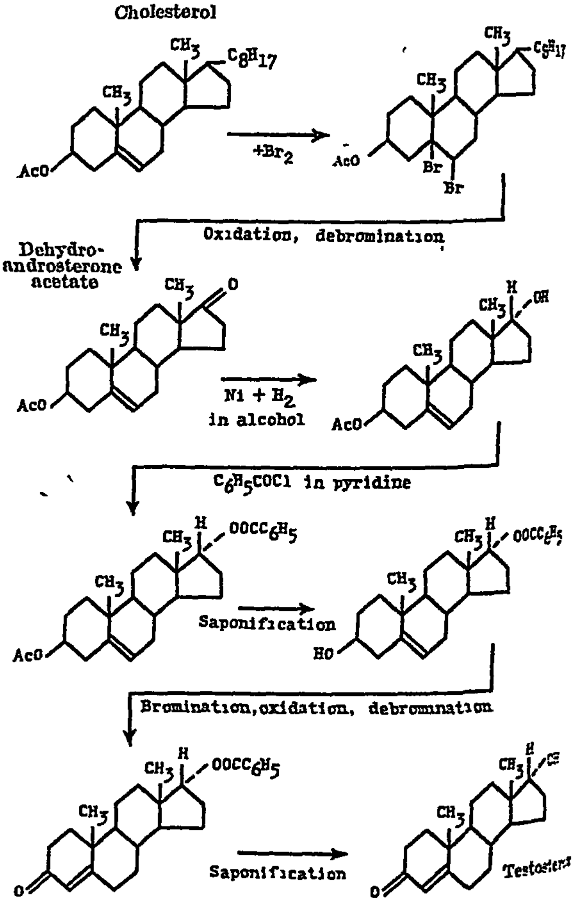


FIG 5—Preparation of testosterone from cholesterol (Ruzicka)

This was followed by the crystallisation of androsterone obtained from human urine by A. Butenandt, and he and his co-workers gave the formula for this and for dehydro-androsterone which they also obtained from human urine. L. Ruzicka and his associates then succeeded in their attempt to produce androsterone by the synthetic degradation of cholesterol. Its formula and that of dehydroandrosterone are shown in figs. 1 and 2. It was established that androsterone will produce comb growth in the capon and enlargement of the seminal vesicles and external genitalia in the castrated rat, but its potency proved to be very low, and considerable amounts were required to produce any response.

Despite this low potency, it was at first thought that the solution of the problem of the male hormone had been found in androsterone and dehydroandrosterone and that they were the active testicular secretion. But the Americans Koch and Gallagher produced from bull testis tissue substances which were 5–10 times as active as androsterone, and they also showed that while alcoholic potassium hydroxide destroys testis tissue, it does not affect the androgenic concentrates from urine. As a result of these observations, David and Laqueur succeeded in separating from bull testis tissue another androgenic substance, testosterone (fig. 3). Butenandt and Ruzicka, working independently, very soon afterwards produced the same substance by the synthetic degradation of cholesterol.

In my last article I referred to the great importance of the work of the German school on the structure of sterols: until the configuration of these substances was worked out no progress could be made on the sex hormones. The sterols, consisting as they do of a cyclopentenophenanthrene nucleus with a side-chain attached at the 17 carbon atom and various double bonds and polar groups distributed throughout the nucleus, present very suitable starting material for the degradation synthesis of the hormone. This method of approach has been of the utmost value in the case of the androgenic substances.

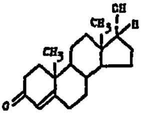
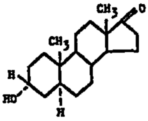
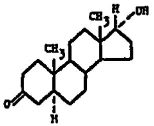


FIG. 3—Testosterone

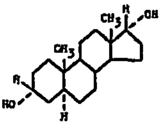
FIG. 6—SOME SATURATED ANDROGENS



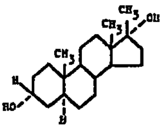
Androsterone (from men's urine) (100 γ)*
(500 γ/10/68 mg.)†



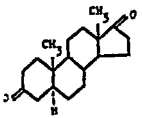
Androstanolone 17 trans, 3 (not found in nature) (25–30 γ)
(rat test ?)



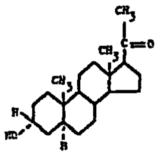
Androstanediol 3 cis 17 trans (not found in nature) (20–35 γ)
(100 γ/10/43 mg.)



17 Methyl (cis) Androstanediol 3 cis 17 (not found in nature)
(25–40 γ)
(200 γ/10/35 mg.)

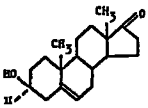


Androstanedione 3 17 (not found in nature)
(100–125 γ)
(200 γ/10 29 mg.)

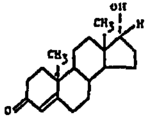


Epi allo pregnanolone 3 20 (from women's pregnancy urine) (androgenic in capons and rats)

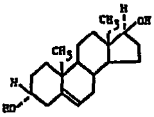
FIG. 6A—SOME UNSATURATED ANDROGENS



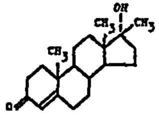
Dehydroandrosterone (from men's urine)
(250–300 γ)
(500 γ/10/16 mg.)



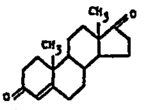
Testosterone (from bull testis tissue)
(13–16 γ)
(50 γ/10/150 mg.)



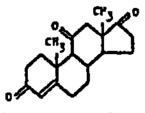
Δ^5 Androstenediol 3 trans 17 cis (not found in nature)
(235–670 γ)
(2000 γ no action in rat)



17 Methyl (cis) Testosterone (not found in nature)
(10–15 γ) (rat test ?)



Δ^4 Androstenedione-3, 17 (not found in nature) (100–120 γ)
(100 γ/10/50 mg.)



Adrenosterone (from suprarenal cortex and from cortical hormone by oxidation)
(700–1000 γ) (rat test ?)

* Equivalent of international unit on capon.
† Per day for 10 days in rat with weight of seminal vesicles in milligrammes.

As stated above, a fundamental difference was found by Koch and Gallagher between the action of alkali on androgens extracted from the testis and from the urine. The destruction of those from the testis suggested that the grouping of double bonds and polar groups might be the same as in the other alkali-labile steroid hormone, progesterone. Attempts were made therefore to prepare substances with a double bond in the 4 position and with a ketone group in the 3 position—that is to say, substances of the type of Δ^4-androstenone-3 The method of sterol disintegration was applied with great brilliance and success by Ruzicka and his co-workers, and also by Butenandt. These methods are so complex that it would be out of place to consider them in detail here. It suffices to say that, from inert sterols such as cholesterol, Δ^4-androstenolone-17,3 was prepared, and was found to be identical with testosterone Figs 4 and 5 indicate the method for the preparation of androsterone and testosterone respectively from cholesterol

By the application of this type of method some sixty androgenic substances have been prepared These may be classified into saturated and unsaturated substances, and the formulæ set out in fig 6 indicate the relative potency of a number of them

To date six naturally occurring androgens have been discovered—four of them in human urine, although only androsterone and dehydro-androsterone have been isolated from normal male urine Normal women also excrete large quantities of androgenic substances in urine, but no pure androgen has as yet been isolated from the urine of non-pregnant females The yield from urine has been found to be greater than was estimated by the early workers, and through improvement in methods of extraction it is now accepted that the daily yield in urine for a normal man is 40–100 international units Koch and his collaborators have shown that the excretion of androgens is extremely low in immature humans, and that adult humans are unique in excreting large quantities of the male hormone in urine, animal urine containing proportionately very much smaller quantities They found great variations from day to day in the amount excreted by individual men and women, and it would obviously be dangerous to base any assumptions on the amount of androgen excreted by a single person over one or two 24-hour periods, the only safe method being to average the results of the extraction from the urine collected over periods longer than three days

In pathological cases the excretion of androgens may be very greatly increased R K Callow isolated as much as 110 mg of dehydro-androsterone from 1 litre of urine from a girl of six who was suffering from an adrenal tumour The normal excretion would be between 2 and 10 international units a day, whereas this child was excreting about 600 international units daily So far it has not been possible to differentiate between the quantities of the different androgens excreted, but only to estimate the total activity. This applies to androgens obtained from tissue and body fluids as well as from urine

All attempts to increase to any considerable extent the yield from testis-tissue, which the earlier workers thought would prove to be the richest source of androgenic substances, have failed, and normally 3–9 international units are obtained per pound of bull testis-tissue, or 90–270 mg per ton of tissue It is a curious fact that the testis-tissue of calves and fœtal calves gives a higher yield of androgens than does that of the mature bull

Another early idea that has proved inaccurate was that blood contained larger quantities of the male hormone Koch after a careful study now estimates the content at only 4 international units per litre of blood

No connexion between the excretion of androgens and œstrogens in men and women has been demonstrated, although it has been noted that the excretion of both substances falls in women during menstruation The rise at regular periods in the menstrual cycle of the excretion of œstrogens is not apparently associated with a similar rise in the excretion of androgens

It is accepted that the source of the androgenic and œstrogenic substances excreted in the urine is the gonads; but other organs, notably the suprarenal glands, may yield substances with androgenic activity

One of the chief difficulties in obtaining accurate observations lies in the lack of the perfect test-object E. Laqueur and his collaborators called attention at an early stage to the great fluctuations in results obtained by rat assay They later showed that the addition of a non-androgenic factor from testis tissue to a given amount of testosterone will increase the seminal-vesicle weight-response by three to four times This unknown factor Laqueur called the "X-substance" and its nature has not yet been established A number of pure substances—such as various fatty acids, œstrogens and primary alcohols—can be added to testosterone with the same increase of response On the other hand it has been found that glycerol and paraffin oil are capable of decreasing the seminal-vesicle weight-response The issue is further complicated by the fact that not all androgens are similarly affected by the addition of these substances The potency of testosterone can be increased by esterification, and the most important of these esters is the propionate, which is widely used by clinicians The effect of the propionate on the weight of the seminal vesicles is three or four times that of free testosterone

The capon-comb-growth test does not reveal the effects of the addition of fatty acids and alcohol to testosterone, or of esterification; but the capon responds more exactly, weight by weight, both for androgens and for testosterone, and it seems to be a better medium than the castrated rat for a purely quantitative assay of total activity

VITAMIN C AND THE AGEING EYE

S M. Bouton, of Detroit, before investigating the effect of vitamin C as a factor essential to the health of certain ocular tissues, worked on the relationship between the blood level of vitamin C, its urinary excretion, and the condition of the optic media with and without vitamin-C therapy (*Arch. intern Med* 1939, 63, 930) The whole subject is somewhat controversial, but Bouton accepts 25 mg as the daily intake of ascorbic acid required for health Some authorities, he says, give the total ascorbic-acid content of blood as 1 11–2 88 mg. per 100 c cm, C J Farmer and A F Abt are quoted as finding 0 6–2 36 mg. per 100 c.cm. of blood plasma, and J Bellows 1 02 mg in normal persons and 0 605 mg in those with cataract The daily urinary excretion is between 20 mg. (lower limit of normal) and 15 mg (minimum)

Bouton investigated 12 patients whose ocular media were cloudy and in whom there were senile ocular changes and vitamin-C deficiency. These patients he divided into two subgroups (*a*) treated with massive doses of ascorbic acid for eight weeks and (*b*) treated similarly for four weeks The level of ascorbic acid in the blood plasma were determined during treatment and a week after it, and the 24-hour excretions in the urine during the last week of treatment and a fortnight later There was visual improvement in all patients not primarily affected with senile cataract; 7 of the 12 showed considerable improvement within the first two weeks of treatment, progress being slow or unchanged from then onward. The treatment had no effect on cataract Bouton says that recent work suggests the probability of a direct effect of ascorbic acid on the media, retinal vessels, optic disk, and optic nerve.

SPECIAL ARTICLES

PRINCIPLES OF ARTIFICIAL RESPIRATION IN FIRST-AID

By Esther M Killick, M Sc, M B Leeds, M R C P
E M Cowell D S O, M D Lond F R C S, D L
and G P Crowden, D Sc Lond, M R C P

(From the London School of Hygiene and Tropical Medicine)

Nowadays asphyxia, due to the inhalation of carbon monoxide, or electric shock has become relatively common, while drowning is no less rare than it was Carbon monoxide poisoning whether accidental or suicidal is an emergency which may confront any individual, since as a rule artificial respiration is immediately required it is essential that sound practical instruction in its technique should be part of the education of the citizen The need for this instruction is emphasised by the statistics for deaths from asphyxia in England and Wales issued by the Registrar General (table I) These figures of course do not reveal the number of cases of asphyxia which are successfully resuscitated They are however enough to show that the deaths from asphyxia due to carbon monoxide and electricity is steadily increasing

TABLE I—DEATHS FROM ASPHYXIA IN ENGLAND AND WALES BETWEEN 1930 AND 1937

Causes of death	Number of deaths per year							
	1930	1931	1932	1933	1934	1935	1936	1937
Gas poisoning— Suicide	1351	1451	1807	1732	1864	1779	1771	1785
Accidents	150	177	200	164	176	200	254	246
Total	1501	1628	2007	1896	2040	1979	2025	2031
Drowning— Suicides	887	913	999	885	807	746	762	806
Accidents	739	685	833	925	600	821	679	781
Total	1626	1598	1832	1810	1407	1567	1441	1587
Electricity— Accidents	68	50	55	70	67	70	80	79
Mechanical suffocation— Accidents	474	428	422	392	411	389	429	463

It is suggested that practical instruction in artificial respiration should be incorporated in the school curriculum for every boy and girl In addition special training should be given where the risks of asphyxia are increased, for example in mines and in many industries and where there is a risk of drowning as on bathing beaches and at swimming baths We are convinced that the presence of trained personnel would save many lives

HISTORICAL RÉSUMÉ

The idea of restoring life to the apparently dead can be traced far back into history Drinker (1938) reminds us that the successful use of the method of mouth to mouth insufflation was recorded in the Old Testament and that the Chinese have for many centuries treated the apparently drowned by upending them and jerking them up and down Dr Stephen Bradwell (1633), in one of the first books written in English on first aid, describes a somewhat similar method For those apparently drowned, he advises "Turn the feete upward, head and mouth downward and so hold by the heels that the water may come out," then "let others help forth the water by stroaking, crushing, and driving his belly and stomach reasonably hard from the bottom of his belly toward his throat If it be cold weather let all this be done in a warme roome before a good fire"

In 1857 Dr Marshall Hall described a method of artificial respiration in which the patient was rolled on his side to induce inspiration, and then turned to the prone position and pressure applied to the lower part of the thorax and abdomen to produce expiration In the following year Dr Silvester published his method, which soon supplanted Marshall Hall's In 1862, a committee of the Royal Medical and Chirurgical Society of London was appointed and issued several reports during the ensuing 40 years In 1904 in its last report the method introduced by Schäfer was described Since then a number of modifications have been introduced but the methods first described by Silvester and by Schäfer remain in most common use

PHYSIOLOGICAL PRINCIPLES

In comparing the efficiency of different manual methods of artificial respiration too much stress has often been laid on the volume of ventilation produced This is clearly important, but it is only a means to an end In a person apparently dead from asphyxiation, whether due to drowning, electric shock, poisoning, or any other cause, the urgent need is to get a sufficient supply of oxygen to the vital centres of the brain before irreparable damage is done to the nerve-cells This involves at least two other factors besides the ventilation of the lungs with fresh air—namely, the passage of oxygen across the alveolar membrane into the blood, and the circulation of this oxygenated blood through the brain The ventilation of the lungs, therefore, must be carried out in such a way that the fresh air penetrates right into the alveoli For this to occur, the volume of air passing into the lungs with each respiration must be above a certain minimal value This minimum will vary according to the build and lung volume of the individual but it may safely be assumed that a volume per breath of 400-500 c cm will satisfy the vast majority of people The first criterion of an efficient method of artificial respiration is then that it should produce a volume of ventilation per breath of at least 400-500 c cm In some types of asphyxia such as that due to carbon monoxide it is desirable to increase the pressure of oxygen in the lung alveoli above the normal level so as to hasten the removal of the noxious substance from the blood It is then an advantage to be able to produce a degree of ventilation considerably above the minimum

The second essential factor is the circulation of the blood The movements utilised in performing artificial respiration should therefore be such as to increase the circulation of the blood

The next consideration is the passage of oxygen from the blood to the tissues The ease with which the blood gives up its oxygen depends in the first place on the difference between the pressure of oxygen in the blood and in the tissues, after a period of asphyxia this difference is likely to be considerable since the oxygen pressure in the tissues must be low as a result of the continuous consumption of oxygen

The dissociation of oxygen from hæmoglobin depends among other things on the temperature and blood carbon-dioxide content. Most forms of asphyxia are associated with a lowering of the body temperature which retards the dissociation of oxygen from the blood. Further, when artificial respiration is performed, it is quite possible to reduce the carbon dioxide in the blood below its normal limits. This happens the more easily because the unconscious individual, with his muscles relaxed and his body temperature low, is producing less carbon dioxide than usual. If the carbon dioxide in the blood is thus reduced the dissociation of oxygen from the blood is seriously hindered. We may therefore add to our criteria of efficient artificial respiration that the method must be such as to conserve body warmth, and that it must not so over-ventilate the lungs that too much carbon dioxide is removed.

The body temperature is normally maintained by a balance between the heat produced by metabolism and the heat lost from the body in various ways. During asphyxia heat production is diminished, as a result of cessation of movement in the unconscious patient, and also because lack of oxygen modifies the metabolic processes. Heat loss, however, continues and may even be increased, as for example by evaporation from the wet skin and clothing after immersion in water. It is therefore of great importance to prevent this loss of heat as far as possible by avoiding undue exposure and by the use of additional coverings such as coats or blankets; in addition any available source of additional heat should be utilised.

The second main purpose of artificial respiration is to induce natural breathing to commence once more. To achieve this it is, of course, necessary to get oxygenated blood circulating through the nerve centres that control natural breathing, but it must also be remembered that the natural chemical stimulus to respiration is carbon dioxide. This is another reason for avoiding over-ventilation of the lungs, for if the degree of ventilation is such that carbon dioxide is removed faster than it is produced in the body, then the most potent stimulus to natural breathing is being taken away.

Breathing is regulated through the respiratory centre and the nerves connected with it. In certain conditions, such as injury to the skull or nervous diseases like infantile paralysis or diphtheritic paralysis, this nervous control of respiration breaks down, and breathing becomes very weak or ceases altogether. The prompt application of artificial respiration in such a case may keep the patient alive until the nervous system recovers sufficiently for the normal control of breathing to be resumed. These patients are usually treated in hospital, but the respiratory paralysis may be rapid in onset and so constitute an emergency requiring first-aid treatment.

GENERAL TREATMENT

As has already been mentioned, it is very important to keep the patient as warm as possible, and to avoid undue exposure, not only to aid hæmoglobin dissociation, but also to combat shock. Shock may be associated directly with the asphyxia, but the patient may have sustained other injuries which aggravate it. These may need first-aid treatment, but asphyxia is the primary emergency.

Consideration should also be given to the position of the patient. where the ground is sloping the patient should be placed with his head lowest, since this assists the circulation of the blood to the brain, and in cases of drowning it helps to drain the water from the lungs. An exception to this rule is that the head should be higher than the feet when the patient has a fracture of the base of the skull, as it is then desirable to decrease the supply of blood to the head. If the surface of the ground is rough, the patient should be placed on a coat or rug to protect his skin from abrasion caused by the movements of artificial respiration.

Oxygen and carbon dioxide mixtures are of great value in resuscitation. In asphyxia due to carbon monoxide, it is essential to raise the oxygen tension in the lungs and blood to free the blood of carbon monoxide as rapidly as possible. Hill and Flack (1908) suggested the inhalation of carbon dioxide in such cases to increase the pulmonary ventilation, and later Henderson and Haggard (1920, 1922) advised a mixture of carbon dioxide and oxygen in resuscitation. The carbon dioxide increases the volume of breathing; the high proportion of oxygen in the mixture, together with the increased breathing, raise the tension of oxygen in the lungs and in the blood, and the elimination of carbon monoxide is thus considerably hastened. A mixture of 7 per cent carbon dioxide with 93 per cent oxygen is now very generally used in carbon monoxide asphyxia, with excellent results. It may be administered through a mask while artificial respiration is being applied. Inhalation of this mixture may be useful in other cases where respiration has failed, for the carbon dioxide stimulates the respiratory centre to initiate spontaneous breathing.

MANUAL METHODS IN COMMON USE

A manual method of artificial respiration must satisfy certain requirements if it is to be efficient and successful. It must produce adequate ventilation of the lungs, without over-ventilation. The movements should be such as to increase the circulation of the blood. It must not chill the patient or cause him any mechanical injury. It must be easy to learn. And it must be easy to apply and to maintain without unduly exhausting the operator.

The first three requirements have already been discussed. The question of ease of application and the simplicity of the movements is important, for 9 times out of 10 artificial respiration is applied by someone who has no knowledge of anatomy or physiology, but who has learnt the necessary movements as a method of driving air in and out of the chest. The more difficult the movements are to learn, the greater is the danger that they will be wrongly performed, and that injury to the patient will result. Obviously the movements should not be too exhausting for the operator, since it sometimes happens that one individual must continue to apply artificial respiration for a long time.

Many figures have been published showing the volume of ventilation produced by the different manual methods; some of the results have been obtained on conscious healthy subjects, who tried to inhibit their natural breathing whilst artificial respiration was being applied, while some have been obtained during the period of apnœa following forced breathing. A few results are recorded from applying artificial respiration to a corpse while it is still warm. Working with a conscious subject Schäfer found that his prone pressure method produced a pulmonary ventilation about 3 times as great as that produced by Silvester's method. We have ourselves investigated several methods on conscious subjects; one of us (Crowden 1936) has published results which show that the ventilation produced by the Schäfer and Nielsen methods was very similar, while that produced by Silvester's method exceeded both the others. One of us (Killick) had an opportunity of comparing the ventilation produced by the Schäfer and Silvester methods when applied to a number of medical students, the conditions were not so carefully controlled as in Crowden's measurements but the two methods were compared on 16 students with the results shown in table II

TABLE II

No of students	Rate per min	Silvester s method		Schäfer's method	
		Average ventilation per min	Average tidal air	Average ventilation per min	Average tidal air
5	12	11·0 litres	917 c cm	7 3 litres	608 c cm
11	15	11 3 ,,	750 ,,	11 8 ,,	700 ,,

These figures indicate that the ventilation obtained by Silvester s method is at least as great, and sometimes greater than that obtained by Schäfer's method The efficiency of the ventilation in oxygenating the blood, however, must depend not only on its total volume, but also on the volume of air remaining in the lungs, with which the tidal air is diluted It is important, therefore, to know the mid position of the chest during the application of artificial respiration Crowden's results indicate that the mid position during Schäfer's method is nearer to full expiration than it is during natural breathing in the prone position, whereas during Neilsen's method it is nearer to full inspiration The mid position during the application of Silvester's method is almost the same as it is during natural breathing in the supine position King (1938) confirmed Crowden's results on the mid-position of the chest in the Schäfer and Nielsen methods, but his results also demonstrate that in spite of the alteration in the mid position during artificial respiration by Schäfer's method, the position of the chest at the end of inspiration is about the same as it is during normal breathing, because of the increased volume of the tidal air

With regard to the effect of the movements on the blood circulation it is very difficult to obtain evidence on the human subject as to which type of movement is the most effective Any type of movement which induces ventilation of the lungs by a rhythmic alteration in the capacity of the thorax is likely to help, and it has been shown that pressure on the thorax produces movement of the blood in the veins and in the pulmonary vessels Some workers claim that the method of Silvester is more effective than that of Schafer in this respect but the evidence is not very convincing A more important point in favour of Silvester's method is that the supine position lends itself to the application of "heart massage" more readily than does the prone position, although the efficacy of this massage is by no means proven

Schäfer's method is in general use in England and in the U S A, and it is considered to have the great advantage over Silvester s method that it is easier to train people to apply it correctly, and also that it is less exhausting to the operator and can therefore be continued for a long period by a single individual Some authorities hold that there is more risk of injury to the patient with Silvester's method In Schäfer s method there is no risk of injury unless very heavy pressure is used, when it may be possible to fracture a rib

The method of choice varies from country to country, and when there are several methods available that fulfil the basic requirements of efficiency, the choice of the method becomes less important than the technique of administering it Whatever manual method be selected, the movements should be correctly taught, with due regard for the anatomical and physiological facts on which the technique is based

MECHANICAL DEVICES IN FIRST AID TREATMENT

Where the apparatus is available there are certain mechanical methods which are valuable in an emergency The postural displacement methods are the most suitable for first aid work This principle has found practical application in Eve's rocking stretcher (1932) and one of us (Cowell 1937) has since introduced a special frame on which any stretcher can be placed and tilted by a single operator The operation of either method is very easy and requires hardly any previous training Experiments have shown that tilting at a rate of 12 tilts a minute produces an adequate ventilation of the lungs, and since the method has been employed in practice a number of successful results have been reported The method has the advantage that artificial respiration can easily be maintained during a long period and even when operated by an untrained person it cannot injure the *patient*

The great disadvantage of these methods, and of *other methods needing apparatus,* is *that the equipment* is so frequently not at hand when the emergency arises *If such methods came into general use* the result would be a tendency in an emergency for people to wait for the equipment to be obtained, instead of applying a manual method of artificial respiration immediately Such methods can never remove the necessity for efficient instruction in the technique of manual artificial respiration The more elaborate mechanical methods of artificial respiration, such as the Bragg Paul pulsator and the Drinker respirator, while invaluable in hospital, are quite unsuitable for first aid treatment

REFERENCES

Bradwell Stephen (1633) Helps for Suddain Accidents endangering Life London

Cowell E M (1937) *First Aid*, May, Artificial Respiration by Apparatus

Crowden, G P (1936) *De Samaritaan* The Application of Artificial Respiration, August–October

Drinker C K (1938) Carbon Monoxide Asphyxia London and New York

Eve F C (1932) *Lancet* 2 995

Hall, Marshall (1857) Prone and Postural Respiration in Drowning and Other Forms of Apnœa or Suspended Respiration, London

Heller E Killiches W and Drinker C K (1929) *J indust Hyg* 11, 293

Henderson Y, and Haggard H W (1920) *J Pharmacol* 16 11

— — (1922) *J Amer med Ass* 79 1137

Hill L and Flack M (1908) *J Physiol* 37, 77

Killick E M and Eve F C (1933) *Lancet* 2 740

King B G (1938) *J indust Hyg* 20 576

Schäfer, E A (1904) *Trans Roy Med Chir Soc Lond* 87 609

Silvester H R (1858) *Brit med J* 1 576

"It is inadvertently affirm'd in the Christian Countries of Europe, that the English are Fools and Madmen Fools, because they give their Children the Small Pox to prevent their catching it, and Madmen, because they wantonly communicate a certain and dreadful Distemper to their Children merely to prevent an uncertain Evil The English, on the other Side call the rest of the Europeans cowardly and unnatural Cowardly, because they are afraid of putting their Children to a little Pain; unnatural, because they expose them to die one Time or other of the Small Pox" — VOLTAIRE in "Letters concerning the English Nation" London 1733

MEDICINE AND THE LAW

The Cash Value of Human Life

LAST week Mr Justice Oliver had to consider the effect of war risks upon the expectancy of life. A negligent motorist was to pay damages to a widow for the death of her husband aged 31. Had the dead man been alive and well today, his chance of living out the normal human span might have been cut short by death or injury on war service abroad or by aerial bombardment if he stayed at home. Current events may turn the tribunal towards optimism or pessimism. "Suppose," said the learned judge, "an air-raid warning were given at this moment and the court were cleared while in course of considering this very point, or suppose again that the argument lasted two days and by some miracle peace were declared in the night. would the estimate of the widow's loss fluctuate in consequence?" Assessing the damages at £2250 for the widow and £750 for her two children, he let it be known that he had taken into account the war risks of the moment.

Baron Park said long ago (in Armsworth *v* S.E. Railway) that it was considered impossible to form an estimate of the value of human life Today judicial authority deems the task not impossible but merely difficult. Events, and especially the advent of the motor-car, have thrust this difficulty upon the courts. In 1934 the Law Reform (Miscellaneous Provisions) Act allowed a dead man's rights of legal action to survive for the benefit of his estate It was no longer more profitable for the peccant motorist to kill his victim than merely to maim him Whether death occurred or not, the injury could become the basis of a claim for damages on the ground that the victim's expectancy of life had been shortened. Flint *v.* Lovell (1935) was the first of the cases to give prominence to this new element in litigation. A man of 70, in good health, leading an exceptionally active life, met with traffic injuries which reduced his expectancy of living to a single year. He had lost, said Mr. Justice Acton, the reasonable hope of an enjoyable, vigorous and happy old age which might have continued for several years more The court was sympathetic and gave him as much as £4000. It had not yet been solidly decided that the shortening of one's own life could be taken into account as a separate item of damage in a claim on one's behalf while one is still alive An appeal counsel contended that it could be considered only in so far as one's suffering is increased by knowledge of one's impending death This argument would seem to imply that the doctor has it in his power to negative the claim for damages by not telling patients how ill they are The Court of Appeal ruled that the shortening of a man's life is a detriment for which he can claim damages while living. A learned legal critic, the late Sir Frederick Pollock, criticised the decision in the *Law Quarterly Review*. He was willing to concede that expectation of life is a thing of temporal value, though not assignable, being—on a sufficiently large average—calculable and indeed of the very essence of life insurance. But he did not like the way in which the lords justices had approached the problem. No human tribunal, he maintained, could attach any definite meaning to the terms used, or, for the matter of that, could say whether death, when it comes, is in itself a bad or good thing. To return, however, to the amount of the award, Lord Justice Greer thought the £4000, "though somewhat on the generous side," not so exaggeratedly large a sum as to require interference on appeal On the other hand, Lord Justice Roche (now Lord Roche), in a minority judgment, declared himself satisfied that the sum was much in excess of the proper figure and was an entirely erroneous estimate "If this plaintiff's case merits £4000," he observed, "I do not see how or by what sum a similar shortening of the life of a young man or a middle-aged man could be adequately met." Moreover he felt there was a risk of plaintiff's being given compensation twice over for the same injury. Even Lord Justice Roche was ready to put the figure as high as £3000. He was, however, overruled by the other two members of the tribunal, who left it at £4000.

Two years later came the case of Rose *v.* Ford. Miss Ford, aged 23, was seriously injured in a traffic accident, her leg required amputation and she died four days after the accident, having been unconscious most of that time. Her father claimed damages under three heads.—(i) the damages she would have received, if she had lived, for her pain and suffering, (ii) the damages for the loss of the leg, and (iii) the damages for shortened expectancy of life Humphreys, J., gave her £300 under the Fatal Accidents Acts in respect of the first head of claim, and £500 for the loss of the leg, he rejected the claim under the third head altogether. The Court of Appeal revised these figures It awarded the father £20 for the four days of suffering, and nominal damages (40*s.*) for the loss of the leg because she had survived the amputation by only two days The Court of Appeal confirmed the view that nothing was due for the shortening of her life, but here the House of Lords took a different view Lord Atkin declared that the loss which occurs when the period of a man's normal expectation of enjoying life is shortened can be estimated in terms of money; judges and juries must make the effort to estimate it. On the broad question of liability Lord Wright laid down the principle that a man has a legal right in his own life; he has a right to complain if the integrity of his life is impaired by a defendant's negligence—not only in respect of pain, suffering and disability, but also in regard to the deprivation of the continuance of life for the normal span. As a man has a legal right that his life shall not be shortened by another's wrongful conduct, so he is entitled to damages. But how should the damages be determined? The jury, said Lord Wright, should give what is fair and moderate in view of all the uncertainties and contingencies of the human lot. Special cases might occur, such as that of an infant or an imbecile or an incurable invalid or a person involved in hopeless difficulties The judge and jury must do the best they can in the circumstances in this as in other cases Lord Roche followed on the same lines, though with some misgiving. He felt that the discussion would lead into paths of abstruse thought and technicalities of law far removed from the practical directions which judges have to give to themselves or to juries for the purpose of answering questions of amount He agreed that damages must be moderate, they must be based on normal instances Any supposed difference of estimate as between rich or poor must be eliminated Regard must be paid to the average. "A rich miser living in squalor or a very poor man deeply sunk in misery might require special treatment" It must be assumed that the ordinary man or woman possessed or earned enough to live on with enjoyment. Apart from this state, earnings and income could be disregarded Lord Roche conceded that the emphasis of this new element in the law-courts might lead to inflated damages in undeserving cases, the phenomenon might become stale and ridiculous to the detriment of real and deserving claims. But the abatement of these potential evils must be left to the good sense of judges and jurymen. He himself thought a jury a good enough tribunal for the purpose. So the appeal was allowed, the £22 which the Court of Appeal had given was increased by £1000.

There was one more case last year where these somewhat metaphysical speculations were resumed. In Roach *v* Yates a bricklayer aged 33 was knocked off his bicycle and received severe injuries to the brain. He was rendered permanently unfit for work, he was no longer able to look after himself but would require the aid of a nurse by night and day, and his expectation of life had been reduced from thirty to ten years. He was awarded £542 for his pecuniary losses and expenses and a total of £2742 including all other damages. The Court of Appeal held that a proper method to adopt would be to give the plaintiff (i) £542 as awarded, (ii) a sum not less than £2000 for his prospective loss of wages which he might have earned in the course of a normal period of life, (iii) another sum not less than £2000 for nursing and attendance sufficient for reasonable weekly payments over the estimated period of his shortened life, and (iv) a further sum for his past and future physical and mental pain and the shortening of his life. In assessing the damages under this fourth head the Court of Appeal thought that two points should be kept in mind—first, that no amount of money could ever fully compensate the plaintiff; the most that could be done would be to give him some reasonable sum, and secondly, that no deduction should be made because in consequence of the accident he might be unable to appreciate the shortening of his life or even might be glad that it had been shortened. The Court of Appeal put the total award at £6542. Lord Justice Greer said that the sum fixed in the trial court was quite inadequate. Of course, if the Court gave him £10,000, or even £20,000, it would not be giving him something which he would rather have than the continuance of his healthy life, however, the Court must be reasonable. Lord Justice Slesser stressed the need of deciding on a normal basis. "We are not to speculate as to what would have been the result if the evidence showed the plaintiff to be a man of atrabilious temperament or a follower of Schopenhauer or of suicidal tendency." And so the courts must continue their daily task of evolving the "ordinary reasonable man" and evaluating his vital expectancy. If the injured person be an infant, would it have survived the ailments of infancy? Would the child grow up to be a film star or a habitual criminal? Judges and juries may be invited to let their fancy range from one extreme to the other, their duty is to be moderate and reasonable. They must have regard to the facts of life, happy or otherwise. Sixty years ago, in Phillips *v* L. & S.W. Railway, Lord Justice James had to discuss the case of a Grosvenor Square physician injured in a train accident. The jury, he thought, should take into account the chance of the plaintiff retiring or even failing in his practice. Perish the thought that, even in these uncomfortable days of war, professional failure should be part of the practitioner's normal expectation of life.

Oxygen and Nitrous Oxide.—The Ministry of Health reminds consumers that it is contrary to the national interest to hoard oxygen and nitrous oxide cylinders whether filled or empty. Adequate existing supplies can only be ensured if cylinders are kept in constant circulation. Empty cylinders should be returned with the minimum of delay to the suppliers.

BLOOD-GROUPS EXPLAINED

When we were young, blood grouping was very simple. We remembered Moss and forgot Jansky. Group 1 was the universal recipient (and was rare), while Group 4 was the universal donor (and was common). Groups 2 and 3 were easy. Since then, science has marched on, and we now base our classification on "agglutinogen content," and, by manipulating the letters A, B and O, produce something which might confuse even the most cunning War Office decoding expert. At last, Mr Amram Scheinfeld,[1] writing for the intelligent layman, has cleared it all up.

The four blood-groups depend upon three genes A, B and O. Each person's blood-group is determined by his receiving two genes, one from each parent. The genes received may be the same or different. Gene A produces "antigen A", gene B produces "antigen B", while gene O produces no antigen but only certain less potent substances. Genes A and B are of equal strength and when brought together work independently. Gene O, on the other hand, is recessive, and if coupled with A or B does not function. Accordingly:—

If a person receives genes	A + A or A + O	B + B or B + O	A + B	O + O
his blood group is	A	B	AB	O

Which of these four groups is the universal recipient and which the universal donor? If we remember that A and B are antigens, while O is associated with less potent substances, difficulties vanish. Blood of the AB type can receive either A, B or the weaker O, whereas if it is given to any of these, one or both of its two antigens make it incompatible. Type AB is therefore the universal recipient. Blood O, containing neither of the potent antigens, cannot receive A, B or AB, it can, however, be given to any of the other three, as well as to other O group owners. Type O is therefore the universal donor.

The old and new terminologies together with the distribution of the groups, are summarised in the table.

Agglutinogen title of groups	Moss	Jansky	Relative number of people in each group
AB (universal recipient)	1	4	5 per cent
A	2	3	41 ,,
B	3	2	12 ,,
O (universal donor)	4	1	42 ,,

If the genetics underlying the blood groups are borne in mind, the principles of paternity testing can easily be understood. A baby has got to receive one of the three possible genes (A, B or O) from each parent. Further, each parent has a choice of two genes to offer the child (an A parent can give A or O, a B parent B or O, an AB parent A or B, and an O parent O only).

---

[1] You and Heredity. By Amram Scheinfeld. Assisted by M. D. Schweitzer. Edited by J. B. S. Haldane. London, 1939: Chatto and Windus. Pp. 434. 12s. 6d.

It follows that,

If the baby's group is—	Parents must have given it—	So if mother was—	Father could not have been—
O	O + O	No matter which	AB
AB	A + B	No matter which	O
A	A + O or A + A	B or O	B or O
B	B + O or B + B	A or O	A or O

In addition to the A, B and O genes, two minor supplementary blood genes, M and N, have been discovered. These produce substances in the blood which, while having no effect on transfusions, can yet be detected and are therefore of value in paternity tests. Everyone carries two of these genes, M + M (M) or N + N (N) or M + N (MN). As a result.—

If a baby's supplementary group is—	Parents must have given it—	So if mother's supplementary group was—	Father could not have been—
M	M + M	No matter which	N
N	N + N	No matter which	M
MN	M + N	N	N
MN	M + N	M	M

The value of paternity tests is negative only, and such negative results are only obtained in about 20 per cent. of cases A further difficulty is that the child's blood may not become "set" in its true type until as long as a year after birth. This difficulty can, however, usually be overcome

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

THE GROWTH OF SURGERY

PROF. J. R. LEARMONTH began his inaugural lecture as professor of surgery in the University of Edinburgh on Oct. 10 with a graceful tribute to the late Sir David Wilkie, his predecessor "Wherever he was," he said, "at home and abroad, he strove for all that was best in British surgery" Taking the evolution of surgical thought and surgical practice as his subject, Professor Learmonth said that surgery requires to be integrated with the general pattern of life; with the professions and the trades and so inescapably with economics and statesmanship He traced its evolution from the renaissance of knowledge during the 13th century The most important development at that period was the legalisation of dissection of the human body, for it placed in the hands of the medical profession the first accurate scientific procedure, allowing the correlation of the clinical features in the living with the pathological findings in the dead. Subsequent generations saw the development of purely anatomical surgery until the influence of John Hunter in the latter half of the 18th century stimulated investigation into disturbances of function rather than of architecture. The introduction of anæsthesia and antiseptic technique opened up fields hitherto thought to be outside the scope of surgery. The importance of the upset of function not only of the diseased part but also of the individual rapidly became apparent until the problem facing the modern surgeon became· Can the patient be restored to physiological function that is worth while? This entails a close study of each individual patient by clinical observation and by all the laboratory methods that have proved their value The modern surgeon acquires knowledge of the variables in his cases by observation, experiment and reflection. The initial observation ground and the most important is the bedside In surgical experiment, the best laboratory is again the bedside. Reflection requires leisure, but the tempo of life in the hospitals has kept pace with the outside world and there are few surgeons who would not eagerly welcome regular interludes during which their work could be scrutinised not only by themselves but by their fellow-workers Any future reorganisation of medical effort ought to include the selection of a hierarchy willing and able to devote the necessary time to reflection Individual effort in research is handicapped by the lack of contact with work in ancillary sciences Collective activity is undoubtedly the best method of attacking impersonal problems

The modern surgeon, Professor Learmonth went on, has two duties. First to the individual, to restore him to health, and secondly to the State, to see that the community is maintained at the highest standard of health, by the closest cooperation between the various services "The tale of the achievements of surgery," he concluded, "is a notable one—a tale of which both the laity and surgeons may be rightly proud Perhaps the laity will dwell with most satisfaction on the successes of the craft The surgeon thinks of the problems as yet unsolved, of new problems which will confront him, of new approaches, of new outlooks, of the finished problems, thankfully; of the unfinished, more than a little wistfully"

UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENT)

SOVIET MEDICINE AT THE WORLD'S FAIR

ALREADY two international congresses, those on microbiology and cancer, have been seriously crippled by the European War Most of the English, French and German delegates were recalled at the last moment. One of the papers that was to have been read at the cancer congress is said to have gone down with the *Athenia.* But the Soviet delegate, Dr. A. D. Ochkin, not only attended the cancer congress but later gave an address on the progress of Russian medicine under 22 years of Soviet rule in the magnificent Soviet pavilion at the World's Fair Although the meeting was held on the day following Russia's invasion of Poland no political tension was in evidence

Dr. Ochkin said that the status of the Soviet doctor is a high one. Many medical men, along with other scientists, have been elected to the Supreme Soviets of the U.S S R and of the autonomous republics. Young physicians working in the countryside are given a three months' assignment every third year for refresher courses During this assignment they receive both their regular pay and special expenses The medical corps of the Soviet Union is now more than 80 per cent of direct Soviet origin; that is, this proportion have received their medical training during the Soviet epoch. Tuition in Soviet medical schools is free, and 90 per cent of the medical students receive stipends during their studies On graduation each student has a personal consultation with members of the Commissariat of Education and on the basis of this consultation the specific branch of medicine and locality in which the young doctor will begin his practice are decided. Medical education requires 5 years of university training following a 10-year course in the public schools After graduation the physician must practise for 3 years under supervision before he is allowed to practise independently The Soviet Union now has 72 independent medical institutes with a graduating body of 100,000 A position is immediately found for every graduate by the government

In reply to a question as to whether there was not a great deal of malingering when medical care is provided to all without charge, Dr Ochkin replied that this is controlled by public opinion Any instance of malingering is posted on the bulletin board at the factory and in consequence such instances are rare

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month, his name can be seen in the half yearly index

FROM A POITRINAIRE

III

FROM nurses, by a process which in our Pelman days was called concatenation, to doctors The poor medicine man has already been so much discussed and dissected and examined macroscopically and microscopically in these columns that there can be little fresh to say about him But I cannot recollect having read anything by my fellow-scribblers, or even by the omniscient Osler, about the doctor as patient Despite his poor reputation in this rôle, I think the doctor-patient has been unfairly maligned, if at times he is a bit difficult to handle, that is due to his training and not because of any general perversity in the breed It is certain that he enjoys being nursed as much as the next man and the story of the placard at the end of his bed "Too ill to be nursed today" is, I am sure, apocryphal What are his difficulties? Lack of faith might be thought a serious obstacle to his progress, but when one is ill, the emotions tend to get the upper-hand of reason and I for one became readily gullible about the efficacy of drugs and remedies which I should ordinarily have despised Perhaps I can best illustrate the medical patient's troubles by cataloguing some of my own reactions

• • •

Mental worry—Nothing could be truer for the doctor-patient than the axiom "a little knowledge is a dangerous thing" With the emotions in the ascendant and the imagination running riot, all the dreaded complications and one-in a million chances are paraded in the mind when anything untoward happens When an A -P was mooted and attempted upon me, I kept thinking of pleural shock and air-embolism, and when an intercostal neuralgia developed on my sound side, only a negative X-ray plate would convince me that it wasn't pleurisy, a bout of fever shortly after I arrived at the sanatorium had to me all the early features of typhoid fever—epistaxis, slow pulse, staircase temperature, constipation—so that I insisted on a complete bacteriological examination, to the secret amusement (as I learned later) of the medical staff Alas! the laboratory, as labs have a habit of doing, failed to confirm my diagnosis. Such a state of mind needs constantly to be reassured and I believe that frank explanations by the attendant physician of the doctor patient's illness and progress, and fears allayed about the risk of possible complications would greatly relieve his anxiety But he must not be molly coddled, for then he begins to think that his is a very special case

Physical pain—To bear or not to bear? That was the question which worried me after each stage of the thoracoplasty You can imagine the agonies of a fit of coughing when ribs are cut and, begging the surgeon's pardon, chest muscles mangled (though I am for ever grateful to the physiologist who taught me that a tight pinch on the nostrils will abort an impending sneeze!) The resident staff invited the free use of sedatives whereas I, perhaps with the idea of stoic suffering but also, I think, with an instinct that pain tolerated meant a more rapid recovery, kept holding off as much as possible Will some wise physician or pharmacologist tell us which was right? Pain is certainly suffered differently by different people, and by and large I'd say that the nearer the soil or the less civilised the patient, the better he tolerates pain Think, for example, of the cowlike fashion in which the peasant of any country bears and produces her young and compare that with the pathological progress which child-bearing nowadays is to so many of our middle- and upper-class women Luckily, acute physical pain does not linger long in the mind, the nightmarish sufferings of a few months ago are now but the vaguest memory But, unluckily, the perfect analgesic is still hard to come by despite the infinite variety of barbiturates and opiates, morphine and its congeners made me sick veganin and aspirin made me sweat like a horse, veronal gave me bad dreams and only nepenthe and allonal gave a modicum of peaceful relief

Anæsthesia—My knowledge of modern anæsthesia is very rudimentary, and when I heard from other patients that my thoracoplasty would be done under a local, I was rather sceptical and not a little afraid But true it was, and apart from the preliminary needling to block the nerves, there was little discomfort, only the actual cracking of the ribs made me hold hard to the proffered hand of the anæsthetist Despite the odd feeling of lying on the table, feeling the weight of periosteal elevator (I believe the surgeon calls it a rugine) and hearing the click of artery-forceps, the hiss of electric cautery and the occasional whisperings, I finished with a distinct preference for local over general anæsthesia, my personal experience of the latter being limited to chloroform and ether With a local, the immediate after effects of the anæsthetic are minimised and there is none of that persistent nausea at their smells which chloroform and ether leave behind Besides, the use of local anæsthesia has, I am told, resulted in a greatly lessened risk of spread of the tuberculous infection during and immediately after the various stages of the thoracoplasty It is all very wonderful to the [illegible] as the 55-year-old Devonian who was my ward mate said, "If I go back to C—— and tell the [illegible] I've had bits of all my ribs cut out without being put to sleep, they'll call me a blinking liar"

I must not forget to pay my tribute to the surgeon Chest surgery has made enormous strides in the past 10 years and the experience and manipulative skill of the specialist is now such that thoracoplasty and pneumonectomy are being undertaken with possibly no more risk to the patient than cholecystectomy or gastro-enterostomy [illegible], the advances have been confined to a few centres so that many [illegible] are being deprived of their benefits [illegible] there is not, I suppose, in the south-west of Scotland, with a population of two million odd, a surgeon who has done a couple of thoracoplasties Such conservatism is unforgiveable.

Visitors.—Visitors to the sick may be divided into those who talk and go, and those who don't and stay. The understanding visitor realises what an effort it is for the patient to initiate and keep up a flow of conversation for an hour or more, consequently he himself does most of the talking for half an hour and then says good-bye It is always wise to leave at a time when the patient seems to want you to stay a little longer Ordinarily, the less well-known visitor and the visitor of opposite sex put the greater strain upon the patient so that, when he is really ill, admission to the sick-room should be limited to near relatives and intimate friends Talking shop should be as much as possible avoided

The patient's attitude to his family is always rather droll Feeling that a mask of cheerfulness is no longer required and unconsciously craving for sympathy, he becomes a doleful creature, exaggerates his little aches and pains, and indulges in a general grouse. I suppose it does good thus to let off steam and to give way to the emotions, but it must be rather trying to the wife or mother, it irritates me still to recall the sulky and boorish manner with which a spoiled youth of nineteen used to greet and treat his parents On the whole, however, I'd say with the historians of "1066" that visiting is a good thing Indeed, one of my pleasantest memories is the many acts of kindness which came to me in those sick days, often from quite unexpected sources.

* * *

It is tempting, but would be romancing, to tell of the change in mental outlook, the sobering influence, the purifying effect which a serious illness produces or induces in the sufferer I fear there has been little change in me unless it is a physical one; and I shall not weary you with the tale of atrophied muscles and flat feet or of the slow and painful business of their rehabilitation The student of human nature will, however, notice one mental change in the sanatorium patient. He arrives a depressed and moody individual, resentful at the nasty knock the fates have dealt him and with that lingering feeling of fear and shame at having a "touch of trouble on his lungs" Gradually the depression lifts, this isn't such a bad place after all and the other fellows seem cheery enough ! Besides, the county council is paying for his keep, his employers have been pretty decent about his pay and his job (the majority of them are!) and he is away from the petty worries of the home He becomes more companionable, he is getting up now and the A.-P. is working fine He takes his part in the life of the community, everyone calls him by his Christian name and soon he is as lively as a cricket; sometimes, sister will tell you, a bit too lively It is only when he leaves this sheltered existence and again enters the hurly-burly of the outside world that things don't look so rosy and troubles crowd around him; but of that more anon

PUBLIC HEALTH

Poliomyelitis in Essex

LAST year poliomyelitis appeared in epidemic form in many different parts of England and Wales The region where this happened first was the county of Essex, and particularly the urban districts of Braintree and Halstead An instructive account of the sequence of events in his county, and the steps taken to meet them, is given by Dr W. A Bullough in his annual report as medical officer of health.

During the first six months only the customary sporadic cases of poliomyelitis had been notified, numbering but 7 in all; but in the third quarter of the year there were 113 cases, and in the fourth quarter 61. The age-distribution in the epidemic period shows the usual preponderance of cases in the first ten years of life, but in the rural areas the incidence fell more hardly than in the urban upon the adolescent and young adult Males were more often attacked than females—101 cases to 73—and the total fatality-rate was approximately 10 per cent There was one family in which 4 cases were reported.

The outbreak naturally caused a good deal of public alarm and some dislocation of business in connexion with shopping, cinemas, swimming-pools and public meetings Concerted action by the numerous health and education authorities concerned was achieved, but Dr. Bullough emphasises the need to improve on such a situation, "as it should not depend upon the personal factor of hospital boards, officials and others to ensure cooperation in establishing the best possible means of dealing with an epidemic of this kind" Unless one authority is made responsible for all hospital administration he would like to see the local M.O.H medical superintendent of an isolation hospital in his area, or at least closely associated with its administration With such a disease as poliomyelitis the services of a consultant physician should, he adds, be made available to visit homes and diagnose doubtful cases In this outbreak Dr F. E Camps, the county consultant physician and pathologist, gave much help

At an early stage it was argued by many people that the seriousness of the disease and its sequelæ should be minimised to prevent undue alarm Dr Bullough did not accept this view, believing that the withholding of information is likely rather to increase suspicion and alarm It might well be pointed out, however, that even in epidemic periods the chance of an individual child contracting the disease is small, though this should not lessen the importance of laying stress on the need to avoid crowded assemblies, especially of young children The advisability of school closure, to which we referred in an annotation a fortnight ago, is still debatable Dr Camps takes the view that poliomyelitis must not be placed in the same category as the common infectious diseases of childhood and that in its presence closure is desirable, together with strict instructions that children must be kept under supervision in their own homes—a counsel of perfection, perhaps, except among the well-to-do He suggests that at the beginning of each summer letters should be sent to general practitioners and district nurses outlining the diagnostic features of the disease and the facilities available for assistance and treatment In this way the overlooking of early cases might be avoided and immediate treatment and control more readily achieved

---

RELIEF FOR POLISH REFUGEES —Dr. R. W. B Ellis left London on Oct 12 for Rumania as one of a delegation from the Friends Service Council to inquire into the possibilities *of doing relief work among* Polish refugees Dr Ellis has already done similar work in Spain

LETTERS TO THE EDITOR

BLOOD-COLLECTION TECHNIQUE

SIR,—The booklet recently circulated by the Medical Research Council describing blood transfusion methods contains a section on the adaptation of certain apparatus to the vacuum method of blood collection described by us in THE LANCET, 1939, 1, 388 The advice given in this section is unsatisfactory and, if followed, will lead to so many failures that its circulation is regrettable The chief mistakes are as follows —

(1) *Type of tubing to be used for blood collection* — It is necessary for smooth working that pressure tubing should be used If the tubing distributed by the M R C (No 8, 3/16 in internal bore) is used, as they suggest, it will collapse under the influence of the vacuum, and the flow of blood will be impeded A 6 in length of tubing is also too short for convenience, about 9 in should be used

(2) *Type of collecting needle* —The 15/10 needle has great advantages over the 24/10 size recommended by the M R C In the first place it simplifies venepuncture, which is an important consideration when blood has to be collected by workers with little experience from donors who are not specially selected for the large size of their veins The smaller needle will fill the bottle just as efficiently as the larger one, which is, in fact, more likely to be obstructed by collapse of the vein on to its orifice The 15/10 needle has the further advantages of lower cost and uniformity with the needles recommended by the M R C for the administration of blood

(3) *Preliminary filling of the tube with citrate* —We have now performed several hundred collections with dry-sterilised apparatus as originally described and have never encountered any difficulty due to clotting of blood in the tube We do not therefore see any reason for this measure, and we disapprove of it because it increases the risk of contamination which our method was designed to minimise and has almost succeeded in eliminating We have cultured seventy bottles of preserved blood collected at this hospital during the early days of the war, in some cases by junior officers recently introduced to the technique After removal from the refrigerator these bottles were incubated for twenty-four hours before the cultures were made, and they have all been found to be sterile This desirable standard of sterility will not be maintained if unnecessary manipulations are introduced

We are, Sir, yours faithfully,

C R BOLAND,
N S CRAIG,
A L JACOBS

Mile End Hospital E 1, Oct 9

FEVER BEDS IN WAR

SIR,—It is stated in the annual report of the Ministry of Health that, in England and Wales, 37,500 beds are reserved for the isolation and treatment of infectious disease Although county schemes have facilitated the establishment of isolation hospitals of sufficient size to constitute efficient and economical self-contained units there are still large numbers of small fever hospitals, thus 74 district councils provide 1875 beds in their own fever hospitals (average 25 beds), and 812 grouped in 181 areas provide 9902 beds (average 55) Only in 43 districts requiring 260 beds have arrangements been made for cases to be admitted to the relatively large fever hospitals of adjacent county boroughs

Accommodation having been provided to ensure a sufficiency of beds in epidemic periods, it follows that small isolation hospitals are often empty and the bigger hospitals have commonly a large number of unoccupied beds The number of vacant beds has in recent years been increased in towns in which, with none but beneficial results, the scarlet-fever admissions have been reduced by a half, no case being admitted if a separate room can be provided for the patient, or the patient and mother So it is that generally there is a large excess and a larger potential excess of beds in our fever hospitals

Considering that in the near future our hospital accommodation may be taxed to capacity and patients may have to be nursed in overcrowded conditions would it not be well to make use, in part at least, of unoccupied fever beds and to see to it that scarlet-fever patients are only removed to hospital when such removal is necessary? This could be done by concentrating fever work as far as possible in the large well-equipped and well-staffed fever hospitals and using the smaller fever hospitals for general work, the country fever hospital would be ideal for convalescents Such a procedure might well put 10,000 additional beds at our disposal

I trust that this matter will have serious consideration now, rather than later when our time may be fully occupied in other directions

I am, Sir, yours faithfully,

DUNCAN FORBES,
lately Medical Officer of Health for the County Borough of Brighton

Oct 16

THE HOSPITAL SERVICES

SIR,—Correspondence in your columns and other evidence point to a wide spread and, I submit, justified dissatisfaction with the present arrangements of the Emergency Medical Service regarding the visiting staffs of the voluntary hospitals in London At some date between the end of June and the end of August it would seem that the Ministry reversed their previous resolution to maintain the voluntary system at the teaching hospitals and embarked upon *the scheme of full time service for all members of the* staffs, both senior and junior In his answer to a question put by me yesterday in Parliament, the Minister of Health declared that "recruitment to the Emergency Medical Service is on a voluntary basis" and that "salaries and conditions for this service were fixed in consultation with representatives of the medical profession"

With regard to the first statement that "recruitment is voluntary" it may be true in the letter but is not true in the spirit, and in certain instances within my own knowledge sector officers have taken up the position that members of the visiting staff of a teaching hospital who refused to undertake the Emergency Medical Service thereby ceased to be members of the staff of the hospital concerned With regard to the second contention, I think I voice the opinion of many of my colleagues that the "salaries and conditions" fixed for consultants under the earlier scheme of full time service, and the later concession of part time, demonstrated that these "representatives of the medical profession" cited by the Minister were very unrepresentative of the consultant section of that profession

The chaos immediately supervening on the withdrawal from London of practically all the members of the visiting staffs of the great hospitals, brought about by full time enrolment, and the grievous injury inflicted upon the civil population by the sudden relinquishment of nearly all responsibility of London hospitals for treating the civilian sick, very soon compelled a radical alteration in the earlier plan. After some tentative and completely unsuccessful experiments a second scheme was announced in a circular from the Ministry of Health dated Sept. 18, which apparently is now to be regarded as the official and operative proposition. It is this scheme which is clearly indicated in your leading article of Sept. 23; the complacence with which you seemed to accept it in that pronouncement is not, I think, widely shared by those members of the profession whom it chiefly concerns, namely the visiting staffs of the voluntary hospitals. It was, of course, designed to meet the most serious difficulties which had become apparent in the operation of the earlier scheme, chief amongst which was the abolition of private practice and the withdrawal from the voluntary hospitals of the staffs which had been responsible for the treatment of civilian patients

The scheme may be thus briefly summarised, The Minister is prepared to transfer "*some* (the italics are his) of the medical personnel who have already been called up from whole-time to part-time in order that they may be free to engage in private practice." This concession concerns only the visiting staff, and the Minister reserves the right to re-impose full-time service at his discretion at any moment upon persons so released. The terms announced are that any officer accepting part-time service is "to make his services available to the State, if required, for the equivalent of four days in every week, the remainder of the time being at his own disposal." He is to receive, for doing four-sevenths of the work, only one-third of the pay accorded to full-time service, and he is to be deprived of allowances for billeting, travelling expenses, and extra petrol available to the full-time officer. It is not surprising that these terms have been regarded as inequitable, a view which was clearly manifested at a special meeting of the comitia of the Royal College of Physicians held last Thursday to discuss the position of fellows serving in the Emergency Medical Service.

In response to urgent representations made to me by certain of my parliamentary medical constituents I obtained an interview with the Minister of Health last Wednesday and upon my instance he then expressed himself willing to add a *third* category of service to those at present offered, namely (i) full-time service, (ii) part-time, on the conditions just cited. The Minister was good enough to embody the suggestions made in our conversation in a letter to me, which I received on the morning of October 12, and which he authorised me to read at the meeting of the comitia that afternoon The concession now offered is enrolment of "certain senior men of the standing of fellows not in the emergency service who would like to put down their names with the Minister as willing to give practically unlimited service if a major emergency arises but are desirous of remaining without obligation and without remuneration till such time as that emergency occurs."

This, I submit, in effect, restores the voluntary system of service which was entirely successful in the last war, and I have reason to think would be acceptable to a large number of the members of the visiting staffs of hospitals in London. I believe that there would be no difficulty in transferring members "of the standing of fellows" at present in the Emergency Medical Service to the new category if they so wished. The importance to my mind of insisting *now* upon some measure of voluntary service is urgent, in view of the changes in the medical profession which may follow upon the termination of the war. Already there has been an ominous indication of what some members of the profession expect, and apparently hope, will be the result of the emergency scheme as at present operated. I quote from a recent editorial pronouncement in a medical journal:

> "The organisation of this scheme will have a bearing on the future of medicine which will be of the utmost importance. For the first time there is Government control of those most stout and gallant-hearted last-ditchers of the medical profession, the consultant and specialist groups. Whereas the National Health Insurance scheme started by attracting the general practitioner, what may possibly prove to be the genesis of a State Medical Service has been precipitated by war, and its initial step has been the enrolment of the consultant groups. The difficulties attending such an enrolment could only have been solved so quickly during a national crisis, and the advent of the emergency has probably put medical politics forward ten years. A great struggle is still in store, for the voluntary system, well-suited to the national character, and with many advantages as compared to a rigid State service, will have many adherents"

How far this consummation may be successfully resisted will, I think, depend upon the measure of acceptance given to the new third category, and it is in the hope that some indication will be given in your columns of its prospects of success that I ask your hospitality for this letter.

I am, Sir, yours faithfully,

House of Commons, Oct. 13. E. GRAHAM-LITTLE.

FREUD'S INFLUENCE

SIR,—Though most of your readers will not fail to note the antisemitic complex responsible for the letter entitled Freud and Sex in your issue of October 14, I feel that it should not pass unanswered. The example of Nazi Germany is before us to demonstrate the ease with which ideas of being persecuted (be it by Jews, Catholics or Freemasons) can spread rapidly among the masses through the influence of suggestion and constant iteration.

To be brief, I would only make two points.

(1) Wars between tribes, races or nations were numerous and frequent before Freud was born, and indeed long before the Jews existed.

(2) Dictatorships of one kind or another are recorded in the histories of Babylonia and Egypt. They are not an invention of the Jews

It is no doubt convenient to blame one single factor for all the evils of this world, and this appeals to lazy minds as it helps to simplify problems which are in reality complicated and require great effort of thought to unravel Life becomes so easy if one can blame the Jews for the existence of wars, bolshevism, capitalism, socialism, unemployment, prostitution, a declining birth-rate, venereal disease and so forth, as taught by the Nazi ideology, but I am confident that the vast majority of your readers will think otherwise.

I am, Sir, yours faithfully,

I ATKIN.

Park Prewett Mental Hospital, Basingstoke, Hants, Oct 13

SIR,—I agree with Mr. Rugg-Gunn that it is sometimes right not entirely to hold to the old maxim, *De mortuis nil nisi bonum,* especially in regard to outstanding lights of progress such as the late Sigmund Freud. Though at first there is a real danger that something against the hero may be remembered more than his great achievements, such errors are always rectified subsequently when the perspective becomes clearer

Charcot, whom I myself remember, offers a striking example of this By his zealous work and genius for clinical research and teaching he attracted students and doctors from all parts of the world to the Salpêtrière in Paris He inspired his internes and visitors with his own spirit His pupils helped him in searching the medical literature of all countries, and he always endeavoured to give credit for every little landmark in neurological progress to the author who had first, or best, described a disease, a symptom or one of the (now innumerable) "syndromes" The push that he thus gave to the progress of the study of neurology was almost incredible, and yet, soon after his death, there were some who thought of him as the physician who had "cultivated" that specially dramatic type of neurotic attack amongst his female patients known as the *grande hysterie* of the Salpêtrière Worse still, everyone knew that Léon Daudet, who possessed considerable inside knowledge and had quarrelled with Charcot's son, had with too satirical vigour held up the Salpêtriere school to ridicule, and had even made it appear infamous, in "Les Morticoles" All that has now been rectified and balanced, and Charcot's position will remain in medical history unchallenged, except by those few who refuse to look up the facts Even with William Osler, it was not so long ago that American journalists spoke of him as the physician who (in 1905) advocated a painless death by chloroform for all men soon after reaching 60 years of age

Surely Freud should be remembered chiefly as the man who, in the vast castle of knowledge, took the giant's part in helping to break down the barriers leading into the galleries and vaults of the "subconscious" It is obvious that these galleries and vaults were rather dark, and in the dim light some of the explorers fancied they could see much that was not really there Since then these chambers have been illumined with artificial light and, for the sake of visitors, Freud and especially his English and American followers have adorned the walls with pictures and diagrams illustrating rather dismal subjects, which they had (or thought they had) discovered in some of the deepest of the vaults, these subjects extended from the much talked of "Œdipus complex" to the complicated idea of "patricidal anal sadism" Inhibitions, complexes, obsessions have doubtless been attributed to alleged infantile traumatic experiences in cases in which the latter existed only in the patient's imagination—i e, as the result of subjection to the psycho analytical examination—or had really existed but had no causal relation to the present symptoms

I am more sceptical than Mr Rugg Gunn of much permanent harm having been produced by the Freudian psycho analysts, but a few years ago scientific lecturers on the wireless seemed to have accepted some of the more dubious Freudian doctrines as having been founded on genuine scientific deductions I wonder whether they had examined the evidence adduced in writings by London followers of Freud to prove the correctness of many of their psycho analytical diagnoses

I *do not see how* Freud can be held responsible directly or indirectly for the present prevalence in England of certain *minor* Oriental evils, under which I would include dyed finger (and toe) nails, artificially altered eyebrows and the abundant use of lipstick and face-painting—which latter two often produce an appearance reminding me of an embalmed person I was once shown inhabiting the library of the house that during life he had owned I do not think, however, that our Phœnician Jezebels should be cast out from an upper window at the approach of Jehus or at the instigation of Puritan prophets, but perhaps Englishmen might somewhat less encourage the employment in young women of such artificial supposed "improvements" and "charms"

Anyhow, it will be on solid ground that Freud's pioneer work will be immortalised in medical and psychological history

I am, Sir, yours faithfully,

Harley Street W 1, Oct 15 F PARKES WEBER.

SIR,—It is scarcely for a humble psychiatrist, who is not a follower of the Freudian school, to defend the memory of the greatest of all psychologists But would Mr Rugg Gunn expound for us the Jewish ideological basis of Nazism?

I am, Sir, yours faithfully,

C J C EARL

Caterham Mental Hospital Surrey, Oct 15

*** We regret that space is not available for other communications in reply to Mr Rugg-Gunn Dr ALAN McGLASHAN responded in verse of which three stanzas follow —ED L

ODE TO MR RUGG GUNN

(With apologies to The Skylark)

Hail to thee, blithe Spirit !
    In this time of grief
Thy transcendent merit
    Is to bring relief
To our sad hearts by one big laugh, however brief

Higher still and higher
    From all sense it swings
Spurning in its ire
    Checks that Reason brings—
Thy, so to speak, *Sigmundoscopic* View of Things

* * *

What thou art one knows not ,
    What is like thee, pray ?
Such a Theory rose not
    In mere mortal clay
O urge thy Muse yet higher ! *Blame the I.R.A*

BACTERIOLOGY OF RHEUMATISM

SIR,—I have read Dr Collis's valuable paper on this subject in THE LANCET (Oct 14) and am perhaps rather glad that I am still alive to thank him for his kind references to Dr Paine and my work of ancient date Yet I must make some slight demur Needless to write that in 40 years I have been amused and sometimes surprised at the disparagement, hostile criticism and even ignorant statements so often repeated, because I am quite aware that when both those Englishman are dead, who revolutionised in this country the study of rheumatism, some honest medical historian, picking up "Researches on Rheumatism," will point out this fact to his countrymen

It has long been recognised in the Dominions, America and on the Continent, for of this I have written proofs I demur because Dr Collis writes we claimed the "specific germ" What we did write and I repeated for the nth time was to this effect We thought "juvenile" rheumatism was a specific disease (in so far as any children's disease is specific) and that if the diplococcus we described and found was the only "germ" producing it this had probably some special features I have always left to others to define a 'specific germ' Again he writes that what we produced by experiment was not "rheumatic" but 'infective' I was always under the impression we were attempting to show that this rheumatism was infective. To prove rheumatism was rheumatic seems to me would have been a waste of breath.

These are but little points answered countless times. What is the great demur is his statement that our "central hypothesis was disproved." If so we worked in vain. I venture to write that our central hypothesis, that acute rheumatism was on evidence infective and therefore, if possible, to be prevented, holds good today, and is recognised practically all over the world. It is the details such as the exact processes at work in the infection, the advancement of bacteriology and so forth which have altered and which doubtless have thrown more light on a primitive effort. Whether they have given a better explanation of all the facts of the disease than that we gave in the last chapter of "Researches on Rheumatism" is not for me to say. This is certain: if our central hypothesis was wrong laboratory investigations will not put it right, for it was based on clinical, pathological, bacteriological and experimental investigations.

It is good that Dr. Collis has continued his researches on this vast problem, for obviously no two men could solve it or be free from some error in reasoning. We gave up because after 13 years what we wrote was not accepted, and it was for others to show the way. It is very fortunate that our original specimens, lantern slides, drawings, &c, are located not only in England but in the great Dominions, for, if I live, I may read that our work was imaginary and the perfect hoax.

I am, Sir, yours faithfully,

Bath, Oct. 16. F. JOHN POYNTON.

PLASMA TRANSFUSION

SIR,—With reference to the annotation in the current issue of THE LANCET on the subject of plasma transfusion in the treatment of shock, which directs attention to a communication by Dr. J. Elliott and Dr. N. Nessett, this subject has not been overlooked by the Army Blood Transfusion Service. Extensive experimental investigation is in progress on the subject. When the result of this work is available it will be possible to arrive at a decision as to whether the supernatant plasma of old stored blood can be utilised in this connexion.

I am, Sir, yours faithfully,
H. MARRIAN PERRY,
Millbank, S W., Oct 16 Director of Pathology

MEDICAL LIBRARIES IN WAR-TIME

SIR,—Since your leading article of September 23 appeared, the bodies controlling the chief medical libraries in London have had opportunity to decide their policy at least for the immediate future. The following statement of the present position may therefore be of interest:—

British Medical Association—The library is open 9–5, Saturdays 9–1 and carrying on as usual.

London School of Hygiene and Tropical Medicine.—The library is open 10–5, Saturdays 10–noon. The board of management offers the profession as full a service as possible. The *Bureau of Hygiene and Tropical Diseases*, which acts in close cooperation with this library, is continuing from a temporary address at Cambridge its normal work of promulgating information to the medical officer overseas and to the profession in this country.

Royal College of Surgeons of England.—The library is open 10–6, Saturdays 10–1 (possible earlier closing on winter evenings). Readers admitted on introduction of F.R.C S. or M R C S.

Royal Society of Medicine.—The library is open 9–5, Saturdays included. Owing to lighting restrictions it is not practicable at present to keep open in the evenings, otherwise the service is as usual.

This shows that the curtailments which you criticised in September were temporary precautions due to the uncertain conditions when war began, and that the general tenor of your editorial is approved in practice, in London at least. Your wider suggestion for the fullest cooperation of medical libraries under one bureau might be made desirable by the conditions of the war, though it would entail much difficult adjustment. But in all circumstances it is essential, as you say, that medical libraries should be adequately and efficiently staffed.

As to foreign books and periodicals, we hope to provide the current literature from all countries, as in peace-time and during the last war, and our agents are seeking licence from the Government to import German publications

In conclusion we should like to add that the corporations responsible for the libraries we represent wish them to give the profession their best services in war as in peace

We are, Sir, yours faithfully,
CYRIL C BARNARD,
Librarian, London School of Hygiene and Tropical Medicine;
G. F. HOME,
Librarian, Royal Society of Medicine;
W R. LEFANU,
Librarian, Royal College of Surgeons of England,
R. L. SHEPPARD,
Secretary, Bureau of Hygiene and Tropical Diseases,
T. J. SHIELDS,
Oct. 14 Librarian, British Medical Association.

HÆMATURIA AND M. & B. 693

SIR,—Cases of hæmaturia during treatment with M. & B. 693 have been reported by H. Southworth and C Cooke in America (*J. Amer. med. Ass.* 1939, **112**, 1820) and by T. C. Backhouse of New Guinea in your issue of Sept. 30 (p. 736). It is notable that no cases have so far been reported in England; two patients suffering from this condition have, however, been mentioned by Romcke and Vogt of Norway in your issue of Oct. 7 (p. 778). It appears likely that this symptom is more common in relatively warm climates, where the patients will excrete a small quantity of concentrated urine, and where the acetyl derivative of M. & B. 693 is therefore more likely to be precipitated in the urinary tract. This precipitation has been shown to be the cause of the hæmaturia.

I am, Sir, yours faithfully,
G. A. H. BUTTLE.
Army Blood Supply Depôt, Southmead Hospital,
Bristol, Oct 14.

POSITION OF MEDICAL STUDENTS

SIR,—We feel that many of your readers may not be aware of the effect of the Emergency Medical Service on medical education. Although we fully realise the necessity for this scheme, and appreciate the efficiency with which it is organised, we are concerned with the suspension of medical education which it has entailed Under this scheme, students in their clinical years have been distributed throughout the sectors controlled by their hospitals, in small groups, working with blood-transfusion units and as surgical dressers. Although in some hospitals the staff have instituted teaching which is at present unrecognised, this is not by any means universal, and adequate clinical material is rare. Since the need for doctors is greater than ever in war-time, we feel uneasy at this arrest of medical education. It has now lasted for six weeks, and as yet we have heard of no plan for the organised continuation of our studies We are looking forward to such a plan, and in anticipation of it we should like to put forward the following proposals

1 *Preclinical students* In order to prevent a shortage at a later date, the number entering on their preclinical training should not be reduced either by compulsory military service or through economic hardship created by war conditions If possible, this number should be increased

2 *Teaching* The standard of education should suffer as little as possible through war conditions Recognised teaching centres should be distributed throughout the sectors, available for all students working in neighbouring casualty clearing stations Meanwhile, vital clinical appointments could be ensured by rotation of students to the hospitals where there is appropriate clinical material But while each student should have his emergency station in the E M S, the short periods when education is held up should not count as part of his course

3 *Economic conditions* Students should not be allowed to give up their training through economic hardship brought about by their redistribution Although in some medical schools the number of grants and scholarships has been increased, and we should welcome the extension of this, we suggest that hardship committees be set up to provide for those students who cannot afford to continue their studies These committees should include some responsible students with first-hand knowledge of students' difficulties

4 *Examinations* Now when the need for well qualified doctors is increased, the standard should not be lowered Already the course has been shortened and pathology as a subject has been omitted from the conjoint examination This, in our view, is one of the most important subjects for an understanding of medicine, and we are alarmed at its omission

If it is necessary at the moment to have an immediate reserve of doctors in excess of the peace-time numbers, it may be necessary to shorten temporarily the period of clinical training But it is also of vital importance that those who are qualified should be justifiably qualified, and that no lowering of the peace-time standards of examination should occur Rather should there be an intensification of medical training to counteract the necessary shortening of the clinical period This reserve of men may later be called upon, but at the moment they should replace as many students as possible in the casualty clearing stations, so that the latter could continue their training under better conditions

Since the medical schools are now scattered over large areas, organisation such as that suggested above would, we consider, be more effectively carried out by some central body, such as the University of London, as opposed to the isolated efforts of individual medical schools Though we fully realise the magnitude of the problem to be solved, and the great efforts that are being made, it is to the advantage of both the general public and the medical profession that a solution should be found as rapidly as possible The suggestions we have made are an attempt to assist those responsible in meeting this urgent situation

We are, Sir, yours faithfully,

A GROUP OF LONDON MEDICAL STUDENTS

London W C 1 Oct 15

Colonel Frederick Whalley, D S O T D, M B has been appointed honorary physician to the King in succession to Colonel H T Bates who has retired In civil life Colonel Whalley is anæsthetist to the Leeds General Infirmary

IN ENGLAND—NOW

GRASS is growing apace from the sandbags guarding King's, one shoot measures fully 9 inches It gives the sandbags a detestable air of permanence—that air of "duration" with which we became so familiar in 1914–18 It makes them look almost as though they had always been there—and truth to tell it is getting difficult—more difficult each day—to remember the time when they were not And yet it is a bare six weeks since we rolled up, just where they are stacked in front of the hospital, chauffeur driven to give our condescending nod to the patiently (sic) waiting house-surgeon It is the swiftness and completeness of this change in existence, I suppose, which gives so erroneous an impression of longevity

Sandbags! What a wealth of memories they already have for us We will not easily forget how those students toiled, naked to the waist, in the hot days preceding the declaration of war Their achievement in those three days is almost incredible—but the monument of sandbags is there to bear witness to it Until the dignity of officialdom exerted itself, the top row was decorated with empty beer bottles Not many of course, for we of King's are a sober lot But the Watney (or perhaps the Bass) could have made play, had he known of it, with the idea of how his bottled calories had been converted into foot-sandbag pounds of energy I am not sure that I did not prefer the bottles to the grass, it looks so forlorn It belongs, too, to a nurses' garden, dug up to fill sandbags hurriedly, perhaps it is nostalgia which makes those dull green blades bend forward so piteously They may possibly be emblematic of the graveyard in which the hopes of Harley Street and consulting practice lie buried—and buried ever deeper as the days pass by

Is this medical service really the beginning of State medicine? Everyone is asking Is it the end of the voluntary system? And if it is? What do we all think of it those of us who have been born and nurtured in the voluntary hospital, and have given the best years from professional life, fully and with unspeakable pleasure, so that the voluntary system shall flourish? Our feelings must be well nigh indefinable But perhaps, a good thing, a desirable thing, if Harley Street and all that it stands for should die, is that medicine will be divested of most of its insincerities No longer would high rentals and large commitments face the young, newly appointed honorary who aspires to consulting practice No longer will the idea prevail that larger and larger motor-cars and houses are necessary to give the impression to the world of success Gone the particular cachet which Harley Street is said to confer, and gone will be the amazing welter of quackery from the qualified and unqualified who pay via a high rental for their Harley Street "degree" Gone will be the unjust competition of those foreign gentlemen with high sounding names and indifferent experience Gone, too, will be the pseudo-consultant who has the effrontery to charge his patients guineas, even though he does no work for charity His correct fee, as an old colleague used to say, is 7/6—shillings not guineas We ask for guineas so that we may afford, through our patients, to devote the greater part of the living day to our honorary commitments at charity hospitals State medicine may put to flight all these things, for ever Who will deny but that this would be on the credit side, and wholly desirable? Even apart from the establishment of State medicine, if the war lasts long enough, it is still possible that the Harley Street bogy will be chased out of existence For shall we all, on our release return there? Very few of us I trow If we accept, as everyone does, the principles of the treatment of paying patients in special pavilions attached to our hospitals, why not also see our paying outpatients there? Why not the private outpatient clinic? Not only is this logical, but it is wholly beneficial to patient and consultant alike.

But I have strayed too far from my sandbags I am reminded of them now, of the stubble of grass which grows from them, as I pensively stroke my upper lip Strange things happen in war-time. One of our frivolities is a moustache competition, with the prize of a gilt moustache cup to the winner, the award to be made one month from the commencement of hirsutilities. What a complete change of mien it has given to some of us! And how revealing! Who would have suspected T. of being ginger, or W of being brunette? Only sixteen days have passed, alas! It will be the one and only experiment for most of us. Our disrespect for our faces has spread even to our clothes—soft collars and flannel bags—which brings me back to sandbags and a one-time *Times* crossword. "Sandbags perhaps?", was the clue; "beach pyjamas" the answer.

* * *

The dispersion has affected not only mothers and children, but also doctors and nurses These have been spread from inlying institutions into the surrounding country. Visits I made to hospitals in the week before the petrol rationing showed how the "reception area" staffs had been influenced as well as those who had gone out. A vast institution twenty miles away which is usually devoted to the convalescence of London children had had decanted into it a mixed vintage of patients including children recovering from illnesses, accidents, and operations; and in one of them were working many doctors, interns and nurses who usually are on duty at the outpatient clinics attached to the school service. They were pleased to be back for a time in wards, brushing up their technique of this side of their profession. Another great institution, which has been empty for some months, was being reopened all at once. Usually it does so a few wards at a time, with the seasonable increase of illness A skeleton staff starts with the first block and further staff is drafted down as each fresh block is ready for occupation. It is a different matter when two thousand beds are to be opened *statim*; especially when the arrival of a fleet of vehicles bearing hundreds of nurses coincides with an air-raid warning. The administration was for the moment staggered; and so were the nurses who had merely been told they were being transferred, and had expected to arrive at an institution fully equipped and in the full swing of work where, after an interview with the matron or her assistant, each would have been allotted a bedroom and appointed to a ward However, after a few preliminary gasps, probationers tucked up their sleeves and went down on their knees to scrub the floors Young doctors lugged hand-carts containing mattresses and other equipment round to the wards from the stores where they had been kept at an even temperature.

At yet another hospital the problem was different. Here an old institution was already in the process of enlargement when the emergency arose; and completion of new wards was being pushed forward at a rapid rate Then there are those institutions where their work is in a state of transition While carrying on with the treatment of infectious disease or mental disorder, a part has been converted for the treatment of the wounded There is an air of quiet in such places that is absent from those that are opening or expanding. Yet again there are the general hospitals which always deal with accidents as well as the civilian sick. In these a readjustment of the allocation of beds is all that has been needed; a heavy work to those in administrative control, but not accompanied by the bustle that was seen in those which were opening or expanding.

As the result of what I saw that week I am tempted to point a moral and adorn the tale. It tests our adaptability, and finds out those that can turn a hand to many things from those only fitted to a groove. All should learn lessons from the dispersion; not only those who have been moved, but also those who have received as temporary colleagues others who in normal times do different work. I noticed three things Those of us who work at big general hospitals do not know how to get patients well, but only how to put them on their way to it. At the first big hospital that I have mentioned, the difference between wards staffed by those who had long been dealing with convalescence and those staffed by others drafted down was very striking. The children in the former were further on the way to recovery than those in the latter They were up, they were merry, they were playing together, they were friendly one with another In the other wards the patients were not up, and when one asked the sister why, she answered, "Well! the doctor has not ordered it"; but when one asked the doctor, he replied, "Oh! I don't know. Yes, I suppose that child might get up now" And of those that were up, each was sitting solitary, motionless silent and with a flat face. We doctors at the general hospitals do not appreciate how much there is to be done after we have written on the bed-board "to get up." We do not even realise that the further guidance towards health, is our responsibility And how unobservant we are! I had been going weekly t this hospital for the last six years, and passing thenc to a great teaching hospital, and yet I have neve noticed this difference in technique. When I saw i in two wards side by side it hit me in the eye; but I am not sure that it had so struck any other Thi unobservance is, I think, evidence of our want o adaptability. Another may be put in the words of a certain medical superintendent. "How few of ou profession have what may be called the quartermaster' frame of mind." Surgeons especially seem deficien of this They little know, they seldom realise, how much thought goes to the organisation of their operat ing theatre, how much there has been of trial an error, and many petty annoyances, and how wide a change may have to come from a minute alteratio in their technique. They walk in taking it all fo granted. Give a surgeon an empty room and hi equipment in packing cases and he is powerless. Hi only reaction is to jump into his car and drive back t London. And yet to those who believe in techniqu what an opportunity it gives, one that may neve come again, of overhauling it and casting out all tha is useless and effete. And the third thing that struc me was how like the army it all is. Well, probabl the principles of administration must always remai the same, just as do those of surgery or of war. It i only in their application that they seem to vary. Th medical superintendent of a hospital of two thousan beds has a charge that is about the same as the com mand of an infantry brigadier. His deputy is hi "G" branch staff-officer, while the matron repre sents the adjutant-general's department. The "Q" branch is divided between the steward and th engineer But order comes out of chaos and the ne organisation is ready.

* * *

Today I had to examine a man whose ship had bee torpedoed by a U boat He told me something of th story The last of the boats to be lowered before th ship foundered—"it was a rowing boat, not a life boat"—had just one place left "You'd better ge in Smith and look sharp about it," said the captain t my patient, who had been peppered with shrapnel the boat pulled away just in time. The captain an one or two others were drowned. "You see," sai my patient, "it was a pretty choppy sea, and we al knew that unless some help came quickly ther wasn't any chance of them being able to stay up ver long He died a brave death, did the captain"

The evacuation of schoolchildren produces seriou thinking not only in adults. My eight-year-old son staying in the country with his grandparents upo whom were billeted some evacuees, had experienced in his own person the ravages of a flea "Wouldn it be a good idea," he remarked dreamily, "if we sen a lot of fleas over to the German soldiers, and the just as they were going to shoot they'd have to sto and scratch themselves"

OBITUARY

GEORGE ALEXANDER SUTHERLAND

[illegible]

Dr Su[illegible] on December [illegible] at Amersham [illegible] years [illegible] attack of [illegible] came peacefully [illegible]

George Alexander Su[illegible] was the [illegible] son of James Sutherland, D.D., [illegible] and took an arts degree there before going to Edinburgh where he qualified in [illegible]. After several months in Vienna he was resident in Edinburgh first at the infirmary and then at the maternity hospital, and then migrated to London where he was house-physician to the recently established Paddington Green children's hospital, where Lauder Brunton, Leslie Ogilvie, Sydney Phillips, Herringham, Watson Cheyne and Stanley Boyd were then on the staff The enjoyment of his work there was enhanced by his friendship with Leonard Guthrie, his immediate senior, whose gifts were the counterpart of his own This was only ended by Guthrie's sudden death in 1918 Sutherland's period of service at Paddington was broken by two voyages to Australia as surgeon on the *Orient*, on his return he became registrar, assistant physician and finally senior physician—an association only severed by his retirement He was also physician to the Hampstead general hospital

Elliott and Fry

Sutherland's main medical interests, writes Dr Reginald Miller, were entirely clinical and it was as a clinician that he excelled His gift of observation was truly remarkable, and this, backed by great thoroughness and supported by a most sane judgment, carried him far in clinical work He relished clinical problems and dearly loved debating them Although keen for his own point of view he would canvass other opinions very readily, and he appreciated arguments presented against his own views His attitude towards his junior colleagues and residents showed the essential generosity of his nature He was ever ready with praise and encouragement, and the results of his experience and his powers of criticism were always at the disposal of those who approached him In these ways he made an ideal senior colleague and chief But he was a Scot and a bachelor, and there was in him a streak of shyness, and thus for many he was more easily appreciated through his medical interests than by other ways From whatever angle, however, he was approached it [illegible]

Sutherland's [illegible] the last war he [illegible] good medical work for the A[illegible] Force and [illegible] the C.R.P.

Of his personal qualities another colleague writes: "Sutherland was a good [illegible] He was a keen controversialist, and thoroughly enjoyed the cut and thrust of [illegible], he was at his best in a small company such as a clinical club He was a keen golfer from his early [illegible] days, thoroughly enjoying the game and just as thoroughly the talk and chaff on a wet afternoon in the club house where his humour was often in evidence. To crown all, he was a good and loyal friend, most highly appreciated by those who knew him best."

THOMAS MORRELL THOMAS

M.D., M.S. LOND., F.R.C.S.

Morrell Thomas was born in Cardiganshire in 1871, and after preliminary studies at Aberystwyth College went on to Guy's, where he took honours in his M.B. in 1895 and passed his M.S. in the following year After resident appointments at Guy's he joined his uncle Dr (later Sir) Garrod Thomas, in Newport Mon., and soon got appointed to the staff of the local hospital now known as the Royal Gwent Hospital. For several years before his retirement he was senior surgeon of the Royal Gwent, but to the end of his days he was, and called himself, a general practitioner It says much for the opinion of his fellow practitioners that in addition to a large general practice he had one of the best surgical practices in Monmouthshire His wide experience gained from observing the final results of operations, combined with his high academic qualifications and sound surgical training, made his opinion unusually valuable This combination of general and surgical practice left little or no time for other pursuits, but being sprung from country stock he knew much about the land and those who spend their life on it, and in his later days he developed a keen interest in antiques and archæology He is survived by his wife and daughter and a son who is a medical student at Guy's

JOHN DIXON COMRIE

Mr Henry Wade writes: "A fair appreciation of Comrie can be formed from the portrait which hangs in his son's dining room in Edinburgh It reveals a tall, upright, stern and kindly man, able and reserved, suggesting the central figure in Luke Fildes' famous picture 'The Doctor' On the wall of the same room there is a masterpiece by Fiddes Watt of his mother, a handsome elderly lady whose house we younger medicals liked so much to visit Comrie was older than most of us who were fellow residents with him at the Edinburgh Royal Infirmary, and his appearance and manner conveyed a spirit of kindly, almost unobservant fatherly tolerance, a sort of 'boys will be boys' attitude to our actions and our opinions; we in turn called him 'the Kaiser,' because of his tall, upright, military figure and a moustache with the points turned up as an outcome of a visit to Germany, the postgraduate home of most of us at that time.

"Although a splendid teacher of students and an able physician, it was obvious that John Comrie's heart was more in the literary side of medicine than in clinical work. Fortunately early in his career the opportunity arose when he was appointed our first university lecturer in the history of medicine His enthusiasm knew no bounds; at a period when with most of us the financial claims of the necessities of life had to come first, Comrie commissioned a distinguished artist to paint for him a picture of the temple of Æsculapius at Epidaurus, reconstructed as it was in the days of its busy practice, with physician, disciples and patients. This large canvas took up the greater part of one of the walls of his consulting room

"After a life of public service, his fellow physicians two years ago chose him as vice-president of the Royal College of Physicians of Edinburgh, a position which is looked upon as training for the still higher post of president But death has intervened Those who knew Comrie will remember well the quiet voice when presiding in the chair, the humorous 'pawky' ruling that quietened the turbulent meeting, the twinkle in his eye with which the situation was discussed afterwards, and the kind word he had of everyone with evil thought of none."

HARVEY CUSHING

TWO FURTHER SURGICAL APPRECIATIONS

Mr. Geoffrey Jefferson writes: Harvey Cushing's was one of those vital personalities, rare in any profession or in any walk of life The story of his long attachment to neurosurgery began soon after he went to Johns Hopkins, but it was not until he had worked in Bern that his publications became specialised. There is no doubt that Halsted exerted a profound influence upon him during the formative years. Halsted's insistence on the utmost care in the recording of every clinical and pathological fact, whether it might seem to be at the moment relevant or not, on the utmost gentleness in the handling of tissues and on the minimising of blood loss and shock met with an instantaneous and understanding response in the young Cushing. He modelled himself upon his master and transferred the Halsted technique to a branch of surgery to which it had not hitherto been applied. He took up this speciality contrary to Halstead's advice. Halsted felt that cases of nervous dysfunction suitable for surgery were so rare that the pursuit of such a speciality could come to little and maybe prove to be financially disastrous He suggested other specialities To anyone else his advice would have been sound, and it is the measure of Cushing's achievement that he has made of this branch one of the happiest and most productive, in a scientific sense, in medicine. His early interest had to be in traumatic material, but he soon found an outlet in devising new steps in the surgical approach for trigeminal neuralgia, and soon tumours began to come along.

The dominant figure in neurosurgery in Cushing's day was Victor Horsley, with Macewen silent yet forceful in the background. Cushing went to London hoping to work with Horsley, but found him so engrossed in his many pursuits that he felt that he would have little time for him. It would be interesting to speculate whether Horsley's interest in neurophysiology would have left a mark on Cushing's work. As it was, the more mechanistic studies which he made in Bern, on the effects of cerebral compression on blood pressure, proved to be extremely useful to him in a practical way; so we find him treating his patients and recording his experiences in the journals rather as physiological experiments on man than as loose clinical pictures Things were going well for him at Johns Hopkins where he had risen to be associate professor of surgery when his bold diagnosis and fortunate operation on the man who was to become General Wood focussed attention sharply on him. Cushing in his later years recounted to the writer his feelings, so far as he was able to recapture them, and the facts of that famous case. He said that he felt sure that it was this operation, witnessed by Cabot of Boston, which brought him to the Moseley chair of surgery at Harvard University in 1912.

The correctness of the choice was made apparent to the whole world by the publication in the same year of his famous book on the pituitary body. It would be absurd to attribute the rise of endocrinology to the appearance of this book alone, but there can be no doubt that it profoundly affected medical thought. Here for the first time was a group of pituitary tumours which had been operated upon with a remarkable degree of success by one man, and more than that, his work in the research laboratories at Baltimore from 1908 onwards offered an explanation of some of the phenomena seen in man. Here was an exciting link between the animal laboratory and the bed-side His interest in the ductless glands never ceased until the end of his life, nor his interest in experiment Witness his injections of pituitrin and pilocarpine into the cerebral ventricles of man, his experimental pituitary basophilism in 1934, and his very recent work on anti-hormones In 1917 his book on tumours of the nervus acousticus set the seal on his reputation. From that time onwards his work followed on predestined lines. It lay first in the classification of the tumours of the central nervous system, based on the observation that neoplasms tend to occur in certain situations, and to be regional in type It would be untrue to give the impression that this thought has not occurred to anyone else, but certainly Cushing went much further than any of his contemporaries in deducing pre-operatively the probable nature of the tumour from a consideration of the history, signs and laboratory tests. The work of classification was greatly helped by Percival Bailey, who had indeed much the greater hand in the actual nomenclature of the tumours Cushing often said that the work of his clinic showed acceleration in one direction or another, depending on the predilection of some personality in the clinic with exceptional gifts. Thus the extremely important work which came from the Brigham Hospital on the visual fields in localised intracranial lesions was due to the brilliance of C. B. Walker From the date of his residency (1915–18) Cushing's case histories were invariably illustrated by visual fields which set a new standard in this work. The same thing happened again with Bailey, with Fulton and with others As regards intracranial tumours his major contribution was something bigger than a study of cell structure. His system of following up his patients, of keeping in constant touch with them, of making them feel that here was a friend as well as a surgeon, enabled him to acquire a remarkable grasp of the natural histories of the tumours themselves, of their duration and of the expectation of life with different types. This was clearly brought to light by the studies of results on groups of cases by Van Wagenen and Cairns.

His last great book on the meningiomas shows very well what could come out of a systematised clinic He had planned to write it with George Hewer when he was at Baltimore on the basis of twelve cases, and he always said that it would have been a much better and more readable book than the one that finally appeared, which was based on over 300 When one tries to assess the most important contribution made by Harvey Cushing I think that one must give pride of place to the purely humanitarian fact that he had a lower mortality than anyone else, either before him or contemporaneously His mortality indeed appeared to some so fantastically low that they openly refused to credit it There can be no doubt whatever that it was strictly accurate What perhaps made it more difficult still for the average man to understand was that he admittedly spent more hours over a single case than the general surgeon spent upon half a dozen They did not see that this was the cause of success and that the Halstedian principles upon which he had been brought up were the foundation of everything All the Baltimore school were slow operators, but in neurosurgery there was the more reason for it because there was everything to learn, and because impatience might well lead to disaster Now that more is known the neurosurgeon can afford to be more speedy He has learnt what is important and what is not, without the least abandonment of the fundamental principles Cushing's view of disease seemed to be strangely mechanistic, that one could not trust too much to nature His results certainly seemed to justify his belief He cut clean across the traditional notion that if a patient had had an operation he should not be operated on again for a week or more if the object of the operation had not been achieved fully at the first attempt

Many of the great pioneers have been great individualists It falls to few to found a school Horsley and Macewen are examples of this lapse in our own country Cushing attracted people to his clinic from all over the world, they made themselves his pupils, his disciples and his friends Few men can ever have had such a stimulating personality. The process of stimulation was indeed often somewhat painful to the co worker who left to play his part elsewhere fired with an ability which he would never otherwise have developed, yet somewhat ruefully licking his wounds Cushing was so dominant that it was difficult for other personalities to express themselves alongside him, and although few people could be more devastatingly charming than he, there were few more ruthless in the onward drive His variations in temperament were somewhat baffling and a kind of Cushing saga has grown up around them His habit of interrupting a speaker, paying no attention to what he was saying, and starting himself to speak about something quite different, could, to the uninitiated, be somewhat humiliating This is only to say that he needed knowing, that a certain technique had to be adopted and he instantly became the most fascinating companion that one is ever likely to meet His sense of humour was acute, he loved a joke or a good story But he was strangely incurious about other people and never gossiped There was a strong streak of tenderness in him that drew one irresistibly He was capable of deliberately splitting infinitives throughout his book on tumours of the nervus acousticus, his recurrent ‘what is more,” and “to be sure’ were little oddities that made one like him the better There is no doubt that he was a great artist There was something electric about him, a stimulus to be got obtainable nowhere else His ideals were of the highest, considerations of money never entered into his calculations, and although he had a sufficiently lucrative practice he disparaged fees out of proportion to the service rendered He lived very simply, his one great extravagance being books No one ever worked harder than he, more concentratedly and at such a high level of performance Though often in great discomfort and pain, it was characteristic of him that he never mentioned his own ailments and actively discouraged discussion of them He would never explain why a walk of a few yards or a flight of stairs to climb were repugnant to him In his later years, when he alternated between a wheeled chair and the most incongruous bursts of walking, he still retained all his own fire His entrance to a room could be relied upon to have the old effect, that sudden heightening of interest, that anticipation which was so rarely disappointed, as those lean fingers twisted and that unexpectedly deep voice boomed He was the only surgeon to have a society called after him during his lifetime, and it was a most happy event that it was able to celebrate his seventieth birthday in April of this year by meeting in New Haven He was truly one of the great figures in medicine of all time He has set a standard of performance which we can neither equal nor forget

Prof Paterson Ross writes Harvey Cushing invited me to work in Boston as a junior associate in his clinic in 1923, and from the moment of my arrival he treated me almost as a son In the summer of that year he was writing Osler's life For 3 months (out of medical school term) his regular routine was 8–11 A M dictating to his secretary, 11–3 or 4 hospital (operating and office work), 4.30–6 30 P M recreation, often tennis, 8–11 looking up references, files of the *Times* for the next morning's dictation (part of his house was cleared of all furniture except trestle tables for files of papers!) At week-ends he would go to Little Boar's Head (where he had a cottage near the sea) and run through letters, etc, and when friends from Baltimore came over he would read a chapter of the Life to them for criticisms, alterations and additions

In the operating room he set himself a rigidly high standard, and he wouldn't permit of the slightest slackness in his assistants. He was a martinet, but a just one—never querulous or unreasonable, but fierce If he gave you a retractor to hold, even if you had to hold it for 3 hours you'd got to hold it *still*, and if you shifted your weight from one foot to the other after getting almost cramped with inactivity he'd tell you to stop fidgeting But the folk who worked for him were each and all imbued with his amazing idealism and would slave for him

As an investigator his chief attribute was diligent attention to detail (as in his surgery) He was most methodical in his record keeping and in preserving his pathological material, and it was by laborious analysis of his records and correlating them with the pathological findings that he made his contributions to science Most of his records were illustrated by his own sketches, beautifully but simply done They looked very easy, but really there was much skill in them, the result of special training he obtained as a student by attending a night art school

His influence on surgery has been stupendous, for his principles, learnt from Halsted, have influenced general surgeons as well as neurosurgeons. And the influence will be perpetuated in the work of all those who worked under him and are now carrying the torch in many lands.

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By MEDICUS, M.P.

THE dominating happening in Parliament last week was the Prime Minister's answer to Herr Hitler's "peace" offer. This offer was so evidently not an offer of peace at all but a manœuvre of war that the House was united behind Mr Chamberlain in his statesmanlike and dignified reply. And after this reply the war situation on the Western front remains very quiet up to the time of writing on October 16.

Two other statements of major importance were made by Sir Kingsley Wood on the Air Services and Mr. Hore-Belisha on the Army. The Imperial Air Service foreshadowed by Sir Kingsley, with its training ground in Canada, typifies the world-wide character of this war more than anything has done up to the present. And with war on this scale we must consider strategy on a world scale Will the war be limited to Europe? The P.M.'s statement and the two statements on two of the services showed the British war machine going into action and rather overshadowed *other Parliamentary business.*

* * *

But the rest of the time of Parliament was very well filled. A debate on two Education Acts, one for England and Wales and one for Scotland, putting back the school-leaving age to 14 was only notable for the definite pledge by the Government to restore the age to 15 after the war. These acts were necessary because recent education acts passed before the war raised the age to 15 and began to be operative in September last Everyone agreed that the acts passed last week were not a final repeal of the 15 years age, but only a war-time suspension. Sir Percy Harris, the Liberal Chief Whip, made a good point when urging that under conditions where town children were scattered over widely spaced reception areas the Board of Education, as apart from the local education authorities, should take a larger share of control and responsibility for schools in those areas

It was Sir Percy also, to be followed later in an admirable, and quite short, speech by Mr L S. Amery, who raised the point of what is to happen to the children left behind in the towns where schools are closed and where they are "running wild" As Mr Amery asked, Is one of the results of the war to be a generation run wild? No one even yet quite knows *the extent of the problem.* How many children are there in London now? Sir Percy Harris got no definite reply to his question, because the ministries do not yet know. Evacuation at first was under school auspices, but it has been *added to* by voluntary exodus and subtracted from by the return stream to the towns which in some places has been more and in others less What this to-ing and fro-ing has resulted in is not yet known and indeed *the population* is not yet stabilised.

If air attack develops on the scale originally anticipated—the Warsaw scale so to speak—then there will be a lot more private evacuation, indeed perhaps refugee evacuation. But the Government will have to consider whether some form of compulsion is not required in order to move people from vulnerable and put them into safe areas; the decision to move or not to move is one that is often very difficult and sometimes impossible for a private citizen to make.

* * *

Other parliamentary business during the week included further discussion of the Finance Bill and a frontal attack on the Ministry of Information and its roll of the 999 This significant number has been reduced, but Sir Edward Grigg warned the House that *this did not necessarily* mean its cost would be reduced Referred to as the "fourth arm" (a distinction also claimed, by the way, for (*a*) finance and (*b*) civil defence) the Ministry of Information must clearly be an expensive service.

One useful suggestion made by Sir James de Rothschild in a very able speech was that we should arrange to have high-power transmitters in the Dominions and Colonies to spread our broadcast information still more widely over the world. There are the hundreds of millions of people in India, China and the rest of the far East—there are the hundred million black and white men in Africa—there are the millions in the two Americas The strategy of information must be on a world scale

What is *going* to happen *to* the new child population in the reception areas is not at all sure as yet—here is another field for broadcasting, school broadcasting if the local education authorities and the teachers would only waken up to its value —but it will certainly be necessary to have more doctors to inspect and treat children than there are at present

Many questions on medical and allied matters are being asked on every suitable occasion in the House, and behind the scenes a redistribution of duties is proceeding apace It would probably help, especially on the educational side, if the Board of Education itself took a hand as Sir Percy Harris suggested. One aspect of the matter was brought out by Sir Ernest Graham-Little when he spoke of "the acute financial stress" to which government medical arrangements have submitted some distinguished members of the medical profession This is being met by an arrangement by which *doctors can go on* "indefinite leave" subject to recall if required.

Meanwhile it would seem to be certain that despite the stresses of various kinds that affect the medical profession it has been able to cover *the medical* needs of the services and the civilian community in a pretty satisfactory way and confidently expects to be able to meet the stress of actual air bombardment.

FROM THE PRESS GALLERY

Release of Full-time Members of the E M.S.

IN answer to Sir RALPH GLYN in the House of Commons on Oct 12 the Minister of Health said that there are normally approximately 97,000 hospital beds in the metropolitan police area, excluding beds for mental patients Under the emergency hospital scheme an additional 14,000 beds have been set up in hospitals in the outer parts of the area, while approximately 13,000 beds have, for the time being, been closed in certain of the inner hospitals. Accordingly, *the total number of* beds available in the metropolitan police area is now about 98,000 Approximately 55,000 are immediately available in hospitals in the area of the London sector scheme (which is rather larger than that of the metropolitan police area) and these can be used either for casualties or for ordinary sick in need of inpatient treatment. Hospitals have been instructed to admit to their unoccupied beds all cases requiring inpatient treatment. As regards the release of members of the medical profession to carry on their normal duties arrangements have been made under which doctors can either go on indefinite leave, subject to recall if required, or (with the exception of doctors filling posts as registrars, house-physicians and house-surgeons) go on part-time service under conditions recently drawn up in accordance with the advice of a committee consisting of Sir Bernard Docker (chairman), Dr. G C Anderson, Sir Girling Ball, Dr H E A Boldero Viscount Dawson of Penn, Mr C H S Frankau, F R C S, Sir Cuthbert Wallace, and Sir Charles Wilson

The conditions for part time service are as follows

1 Each officer who is transferred to part time will make his services available to the state if required, for the equivalent of four days in every week the remainder of the time being at his own disposal The precise manner of giving effect to this condition—i e, *the particular days or* parts of days when the officer is to be on call—will be a matter for arrangement with the resident medical superintendent, subject to the approval of the group officer A record of the times when the officer attends for duty will be kept by the medical superintendent

2 He will receive a retaining fee equivalent to one third of the salary which has been already offered to him This fee will cover any services rendered under the previous paragraph, so long as he remains on a part time basis.

3 Should circumstances make it necessary he will be required to resume whole time in accordance with the undertaking he has given and in that event *payment of* the full salary will be resumed

4 No officer who elects to go on part time will be eligible for an allowance for *board and lodging or for* travelling between his home and his official headquarters

5 Similarly such officers being no longer whole time temporary civil servants will not be entitled to official leave, or to sick pay during temporary absences due to illness

Requisitioning of Hotels in Spas

In the House of Lords on Oct 11 Lord GREVILLE asked who was responsible for commandeering hotels in various British *spas* for civil departments He said that every year some thousands of people sought treatment at these spas, including many workers who were most useful in war-time Judging from the experience of the last war there would be a great increase in cases of rheumatism or its kindred ailments—neuritis, arthritis, and so on Most of these hotels were taken by the Government for use as offices Were the medical military *authorities consulted?* And were the medical men who lived in these spas consulted about the likely *number of* people from essential trades who would need spa treatment in war-time? There was practically no accommodation *left in some* of these spas That was a very short-sighted policy—Lord MANCROFT said that this was a case of puerile stupidity

Earl STANHOPE, Lord President of the Council, said that the Government were bound to take active steps to evacuate essential departments, and that involved *the taking over* of alternative accommodation outside London That was a complex and tremendous problem The only buildings where they could find office accommodation which enabled official staffs more or less to work *together* were very large buildings such as hotels or schools The officials concerned had done their best to warn hotel proprietors that it was possible that their premises might be required if war should happen *Spas had been selected because* the necessary hotel accommodation and living *accommodation for* the staffs which could be found in those places was not available in sufficient quantities in the ordinary provincial towns *far away from* the manufacturing centres *The question* of the treatment of rheumatism, particularly Service patients, had been considered by a subcommittee on which the Ministry of Health and the service departments were both represented—*Lord GREVILLE* Were there any medical members of the service departments on the *committee?*—Earl STANHOPE said that there was not actually a doctor he thought, but since this matter had been referred to the War Office seven buildings and three different spas had been earmarked for those suffering *from rheumatism as a result of their service* with the forces Accommodation for the general public would still be available, though not as good accommodation That was one of the disabilities of war-time There were *still a large number of* boarding houses and small hotels to which people could go if they wished to get treatment for rheumatism at these spas The facilities at most of the hydropathics were still available

QUESTION TIME

OCT 11-12

Students who Enlisted

Sir JOSEPH NALL asked the Secretary of State for War whether, following upon the decision not to send men under 20 years of age upon active service overseas, he could allow the discharge of medical and other specialist students who enlisted voluntarily and enable them to continue their student training until they attained the age of 20 years—Sir VICTOR WARRENDER, financial secretary to the War Office, replied Arrangements have been made for the release from the Army of medical and certain other specialist students provided that they have reached a sufficiently advanced point in their studies

Sir J NALL Does my hon friend realise that some of the very young students who are only 18 years of age cannot have reached a very advanced stage in their studies, and will he consider the cases of those between 18 and 19 years of age who are otherwise *being deflected* to channels of work which will be of no use to them later on?—Sir V WARRENDER I will look into that point

Blood-transfusion

Mr CULVERWELL asked the Minister of Health whether the blood transfusion organisation for the London and home counties district was *still taking regular donations* of blood from registered blood donors, and since military requirements were provided for by a separate organisation which was a special branch of the Royal Army Medical Corps, what was done with this blood given by citizens—Mr ELLIOT replied The blood transfusion organisation for London and the home counties was set up to ensure a ready supply of blood As blood can only be stored for a limited time supplies are being continually taken from blood donors Arrangements have been made with the defence services that the stores of blood will be used to *supply service requirements subject to civilian demands* being satisfied, but blood which is taken and not used for its primary purpose is being utilised for the preparation of serum, a stock of which is invaluable under war conditions

Mr *DAVID ADAMS* asked whether the respective blood transfusion schemes throughout the country were in satisfactory working order and equipped for war emergencies, and if he would give details as to the actual position—Mr ELLIOT replied, The chief measure taken for the increase in the supply of blood for transfusion purposes is the setting up of depots on the outskirts of the London region where a store is now always maintained These depots have been set up by the Medical Research Council and are now fully in operation They will supply blood to the London region and to some districts outside In the provinces the existing voluntary arrangements have been augmented

Mr ADAMS If I supply the Minister with a contrary opinion will he undertake to apologise to the House?—Mr *ELLIOT I will undertake to investigate any facts* supplied by the hon member

Supplementary Rations for Invalids and Others

Mr JAMES GRIFFITHS asked the Chancellor of the Duchy of Lancaster what provision was being made, *in the* contemplated rationing scheme for issuing supplementary rations of certain kinds of *foods to invalids* adolescents and men and women engaged in heavy labour and whether these supplementary rations would be of fixed quantities or at the discretion of local food committees—Mr W S MORRISON replied The special claims of invalids adolescents, and heavy workers in relation to rationed foods are recognised and are being examined

Mr GRIFFITHS May I ask whether the question of supplementary rations to adolescent boys and girls is under consideration?—Mr MORRISON Yes Sir

Consultants in the E.M.S.

Sir Ernest Graham-Little asked the Minister of Health whether he was aware that, as the result of his action in enrolling for full-time service nearly all the medical staffs of the voluntary hospitals in London at salaries which in most cases would hardly defray their house-rent, rates and taxes, he had subjected a large number of the most distinguished members of the medical profession to acute financial stress, inasmuch as they had been suddenly prevented from earning any income from private practice, but were unable to relinquish as suddenly their heavy commitments based on their previous earnings, and if he would consider making some legislative provision such as a moratorium in the payment of rent, rates and taxes in the case of consultants thus called up for national service.—Mr Elliot replied: Recruitment to the Emergency Medical Service is on a voluntary basis Salaries and conditions for this service were fixed in consultation with representatives of the medical profession. As I have already said, in reply to Sir Ralph Glyn, arrangements have been made under which doctors serving in the Emergency Medical Service can either go on indefinite leave, subject to recall if required, or, with certain exceptions, transfer from full-time to part-time service I think the hon member will agree that these arrangements should enable the practitioners to whom he refers to continue private practice. I regret that I am unable to accept the suggestion in the last part of the question.

Dismissal of Doctors

Mr. Parker asked the Minister of Health (1) whether the sector officers in charge of the Emergency Medical Service in various districts were consulted before the letter sent out on Oct. 6, and what steps he was taking to ensure that there were an adequate number of doctors available in the event of air-raids; and (2) if he was aware that house-officers never had written contracts with hospitals; why such an assumption was made in the letter of dismissal from the Emergency Medical Service sent out by his department on Oct 6 to a large number of doctors, and whether his department proposed to fulfil its obligations for the past five weeks' work.—Mr Elliot replied. The letter to which the hon member refers was sent out in error All group officers have now been advised as to the actual position of the doctors in question The answer as regards obligations incurred during the past five weeks is in the affirmative

Salaries for A R P. Work

Sir Richard Acland asked whether the Minister would make every effort to reinstate doctors who gave up salaried posts for air-raid precautions work under the impression they would be paid £550 a year, and who now found they were paid £21 a year —Mr. Elliot replied. I am not aware of any case such as the hon. member describes, but if he will let me have particulars I will certainly investigate the matter

Hutment Hospitals

In reply to Mr Gallacher, Mr Elliot said that in England and Wales, one hundred and four hutment hospital schemes, of 1037 huts, comprising 38,120 beds, have been decided upon In seventy-one of these schemes the estimate of cost submitted by a local architect has been approved and construction of the huts has begun In the remainder, tenders are being awaited Two of the schemes, comprising 23 huts, have been completed, and in several more the roofing and walling has been finished so that they could be used, in an emergency, if required Medical, nursing and other personnel will be allotted to the hutment hospitals as they are completed, but I am not in a position to give the numbers As the huts are not yet actually in use I cannot express any opinion on their functioning, but I have every reason to trust that it will be satisfactory.

Mr Gallacher · May we take it that the medical and nursing staffs will be fully and adequately remunerated for the services that they give ?—Mr. Elliot · They will be remunerated on the same terms as those of their comrades who are serving already in hospitals —Mr Gallacher. Is the right hon gentleman aware that there are very serious complaints from doctors in many of these institutions about the treatment they are receiving ?—No further reply was given.

Payments to Hospitals

Brigadier General Sir Ernest Makins asked what were the amounts paid by the Minister of Health to hospitals in respect of wards assigned to air-raid casualties; whether the Minister was satisfied that the system which entailed a heavy outlay on the state was working satisfactorily; and whether this outlay could be reduced since it was far more than the hospitals would receive from civil patients were they able to be accommodated —Mr Elliot replied Payments in respect of beds reserved for air-raid casualties are at present being made only to voluntary hospitals They are made fortnightly, and the total payments so far made for the first fortnight have amounted to approximately £170,000 This figure will be subject to considerable adjustment in the light of additional information being received from the hospitals following the payments In reply to the second part of the question, I am satisfied that this system is enabling us to have many beds ready and staffed for casualties which would not otherwise be available. I do not consider the provision being made against air-raid casualties unreasonable I am, however, reviewing the list of hospitals where beds are reserved for casualties in order to ensure that beds are not being kept empty unnecessarily. In reply to the third part of the question, the payments being made to the hospitals are not related to the payments normally made by civil patients, since these do not as a rule meet the whole cost of treatment Voluntary hospitals are largely dependent on contributions and other charitable sources for the treatment of civil patients, but the Government have undertaken that the cost of treating casualties shall be borne by the Exchequer The department are investigating the claims for payment being submitted by hospitals in order to ensure that they properly correspond with the actual additional expenditure in which the hospitals are involved by reason of the emergency hospital scheme

Mental Patients

Sir Ralph Glyn asked what was the total number of persons undergoing restraint in mental asylums who had been released under the hospital emergency scheme to go to their homes; and what arrangements were made for their care and supervision.—Mr Elliot replied: I am advised that the number of persons who were so discharged to their homes from mental hospitals does not exceed 200 No patient was discharged unless selected after careful investigation of all relevant circumstances, including his home conditions, as suitable to be cared for and supervised by his relatives at home The Board of Control are reviewing the arrangements for the care and supervision in war-time of individuals living in the community who are suffering from mental disorder

London Children's Hospitals

Sir Ralph Glyn asked what was the number of beds in the hospitals in the Metropolitan police area available for sick children at the present time, and what were the arrangements under the hospital emergency scheme for the normal treatment of children undergoing specialist treatment of one kind and another who were unable to go far afield to receive it —Mr. Elliot replied Many of the beds in the general hospitals are available for children, but the figures I have do not distinguish children's beds from adults' beds. There are, I understand, in general, beds available for all requiring hospital treatment Although a number of beds have been reserved under the emergency hospital scheme for the treatment of casualties, the ordinary hospital services remain available There should, therefore, not be difficulty in obtaining specialist treatment required by children who remain in London, but if my hon friend has any particular case in mind I should be glad to look into it, if he would let me have particulars

Col Nathan. In view of the answer, how does it come about that the right hon. gentleman's department has informed me, as chairman of the Infants Hospital, Vincent Square, that notwithstanding the specialist nature of that hospital, as a hospital for children which, under the order-of his department, was evacuated at the outbreak of war, it is not desired that the hospital should be reopened ?—Mr ELLIOT There are a number of places where specialist treatment can be obtained, but if the hon gentleman desires to open the hospital for specialist services I shall be very glad to go into the matter

Outpatients

Mr PARKER asked whether the Minister of Health was aware that outpatients from London hospitals, who had been told to attend their local hospitals during the war, had now been told to go to a local doctor, and that this change was causing discontent owing to the consequent inability to obtain special treatment and the extra cost, and whether the Minister would review the civilian medical services to correct such anomalies —Miss HORSBRUGH, parliamentary secretary to the Ministry of Health, replied No instruction has been given under the emergency hospital scheme that persons who normally attend at hospitals for outpatient treatment should go to a local doctor instead I am aware that at the beginning of the war some London hospitals temporarily closed their outpatient departments of their own volition, but I understand that most of these have now been reopened The last part of the question does not, therefore, arise

Midwives

In reply to questions by Mrs Adamson, Mr ELLIOT said that the number of midwives on the Midwives Roll who are entitled to practise as midwives in England and Wales is 63,275 The number of midwives returned by local supervising authorities as practising in England and Wales in 1938 was 16,761 Figures are not available of the number practising at the present date The number of midwives who have surrendered their certificates under subsections (1) and (2) of section 5 of the Midwives Act, 1936, and whose certificates have been cancelled by the Central Midwives Board, is 2780 Separate figures are not available of the number of certificates surrendered under subsection (2) which relates to compulsory surrender where a midwife is incapable, by reason of age or infirmity of mind or body, of efficiently performing her duties as a midwife

Refugee Nurses

Mrs ADAMSON asked the Home Secretary the number of trained and partially trained refugee nurses, respectively, now resident in Great Britain and the number of those allowed to be employed in nursing work.—Sir JOHN ANDERSON *replied* There are about 180 trained and 840 partially trained refugee nurses in the United Kingdom All of them are at present engaged in nursing work

---

News of the death in Devon of Major-General W C H FORSTER, I.M S (rtd), at the age of 65 has come as a shock to his many friends. He had appeared to be in perfect health until a few minutes before the end came Forster was a man of exceptional attainments, he filled several important teaching and administrative posts with distinction He had a forceful personality, a keen intellect and a gift of clear expression As director of public health in the Punjab he was nominated to membership of the Legislative Council and in this capacity he spoke with eloquence and conviction on public-health matters As a teacher of pathology and hygiene at the Lahore medical college he aimed at turning out competent doctors and hygienists rather than specialists in his own subjects He was one of the earliest workers on the preparation of preventive vaccines against bacillary dysentery, and would undoubtedly have achieved success as a research worker if his services had not been otherwise required

Medical News

University of Wales

At recent examinations the following were successful:

D P H

Part II —H L Ackerman D J Davies, S H *Graham* C T Jones, J J O Reilly, James Paterson, H R Stubbins, A J Thomas

University of Manchester.

Dr D D Cranna has been appointed assistant lecturer in anatomy, and Mr A W. Moule, L D.S clinical lecturer *in dental surgery*

University of Sheffield

Mr C D P Jones has been appointed hon demonstrator in anatomy

Royal College of Surgeons of England

A quarterly meeting of the council of the college was held *on Oct* 12 with Mr Hugh Lett, the president, in the chair Mr R St Leger Brockman was re-elected a member of the court of examiners, and Mr H F Humphreys was re-elected a member of the board of examiners in dental surgery

It was decided to cancel the arrangements for holding the forthcoming primary examinations for the fellowship in India, Egypt and Australasia, but it was not found necessary to make any change in the regulations for the primary or final fellowship examinations during the war *The next fellowship* and dental examinations will be conducted *in London in the normal way*

Diplomas of fellowship were *granted to Eric Samuel* (Cardiff and Middlesex) and Robert Clarence Laird (Toronto) and diplomas of membership were granted to *P B Banaji, R D N* Bisset, J D D Boswell, J C *Herepath H F, Hobbs, F G* Lougee, Simon Meleck, *P A Menon F B* Norrish, J T Roberts, A R F *Thompson*, M M Walker and J. F Williams

A licence in dental surgery was granted to K R D Porter

The autumn series of Arnott and Erasmus Wilson demonstrations has been cancelled The Hunterian lecturers will be asked to deliver their lectures if possible If they are unable to do so they may publish the lecture and use the title of Hunterian professor Mr Ernest Hey Groves will give the Moynihan lecture in March 1940

Sir Walter Langdon Brown will deliver the Thomas Vicary lecture as arranged on Nov 30, but at 3 P.M.

Sir James Walton will deliver the Bradshaw lecture on Dec 14, at 3 30 p m The Buckston Browne dinner will not be held this year The annual meeting of fellows and members will be held on Nov 16 at 3 p m and not 4 p m as previously arranged The museum is closed but the library will remain open until further notice

Casualty Evacuation Trains

The casualty evacuation train inspected by the Queen at Victoria on Oct 13 is one of twenty based on Greater London There are also eight of these trains in the provinces, and two in Scotland Their primary purpose is to evacuate air raid casualties from the hospitals in vulnerable areas to the base hospitals and their crews *consist* of one medical officer, one hospital train officer, three trained and ten auxiliary nurses supplied by the Civil Nursing Reserve and eight St John Ambulance Brigade orderlies

Each train is made up of nine parcel vans converted to take 30 stretchers in each van Brackets have been fixed on the sides of the van the stretchers being carried in two tiers One compartment serves as an office for the *medical officer in charge* In addition to the two brake vans there is a saloon carriage providing further accommodation for the crew This carriage is soon to be replaced by a saloon coach with a kitchen attached so that patients may have hot meals during their journey All train crews have been working on their train for some time and are now an organised team

Ionours (in India)

The following rewards are announced for distinguished ervices in Waziristan Major M P. Power, O.B.E, M.C, .A.M C, has been made brevet lieut.-colonel. Lieut.-olonel J R N. Warburton, M C, Major M. P. Power, and aptain W. M. Stewart, M.B, all of the R.A.M.C, have een mentioned in dispatches.

oyal College of Physicians of Edinburgh

On Tuesday, Oct 24, at 5 p m in the hall of the college, , Queen Street, Dr. J Crighton Bramwell will deliver he George Alexander Gibson lecture He will speak on lood-pressure.

olden Square Throat, Nose and Ear Hospital

By arrangement with the Ministry of Health, the out-atient department of this hospital has now been re-pened.

ood Education Society

Dr T H Sanderson-Wells has accepted the chairman-up of this society in succession to the late Dr Harry ampbell Lord Horder, Sir Albert Howard, Dame ouise McIlroy and Captain G. S Elliston, M P, have een elected vice-presidents

ociety for Relief of Widows and Orphans of Medical Men

At a quarterly court, held on Oct 11, Mr V Warren ow, the president, being in the chair, the deaths of a ember and two of the widows in receipt of grants were ported One of these had received £3,500 during the ast 34 years; her husband had been elected a member in 368 and had paid in subscriptions £52 10*s* The audited counts for the half-year ended June 30 were presented: ,242 10*s* had been distributed during that period among widows and 4 orphans A widow of a member applied r relief and was granted £60 a year Owing to increased come tax (not repaid until April) no Christmas present n be given this year.

Membership of the society is open to any registered edical man, resident at the time of his election within a enty-mile radius of Charing Cross Full particulars om the Secretary at 11 Chandos Street, London, W.1

The Lancet 100 Years Ago

ct 19, 1839, *p*. 107.

From an oration by Mr William Farr.

M Quetelet, in his work "Upon Man," has the following ssage —"As regards medicine, it may shut some of the ors which lead to the grave, but it will at the same time row others wider open, for it can only increase the list the living by making the supernumerary population live the expense of society Æsculapius himself could not his art confer immortality upon the one-half of man-nd, without condemning them to improduction, or ubling the mortality of the other half." . . M Quetelet an amiable member of society; but this creed may be uttered by a murderer—by an unnatural mother over her angled child—by a parricide over the grave of his father. eed I say, it cannot be true It is a perversion and a mis-plication of the doctrines of population, which Malthus d the merit of discovering; and you will permit me, in a words, to show its fallacy, as statesmen may be silently duced to plunge the country into war, to overlook the blic health, or to neglect the sick poor, under the colour at it is a desideratum to get rid, in any way, of a super-ous population

Appointments

RRUTHERS, W L, M B. Leeds, assistant medical officer at the *Cheshire County Mental Hospital, Macclesfield*

Y, J. A, M B Edin, D P H, deputy medical officer of health, port medical officer and assistant tuberculosis officer for Barrow-in-Furness

KFE, G K, F.R C.S, hon assistant orthopædic surgeon to the Norfolk and Norwich Hospital.

ASON, W N M., M D. Lpool, D P H, deputy medical officer of health for Plymouth

amining Surgeons under the Factories Act, 1937. Dr J. V. M. DAVIES (Shefford district, Bedfordshire); Dr S H. MARTIN (Nuneaton district, Warwickshire)

Medical Diary

Week beginning October 23

ROYAL SOCIETY OF MEDICINE, 1, WIMPOLE STREET, W 1

MONDAY

Odontology, 2 30 P M, Mr S F. St J Steadman The Condition of the Teeth in the Australian Aborigines. (Presidential address)

TUESDAY

Orthopædics, 2 P M, Dr J. Trueta (late director of the department of surgery, General Hospital of Cataluñya, Barcelona): The Organisation and Treatment of War Casualties

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

TUESDAY, OCT 24—5 P M, (9, Queen Street), Dr J Crighton Bramwell. Blood-pressure

Vacancies

Birmingham, St Chad's Hosp—H.P and Anæsthetist, at rate of £150.

Brighton, Sussex Eye Hospital, Eastern Road—H S at rate of £150.

Bristol Royal Hospital—Radio Diagnostician, £500.

Central London Throat, Nose and Ear Hosp, Gray's Inn Road, W C 1—Hon assts in out-patients' dept

Grimsby and District Hosp—H P, at rate of £150

Huddersfield County Borough—Assist M O H £500.

Hertford County Sanatorium, Ware Park—Temp asst res. M O, £350

Ilford, West Ham Hospital for Nervous and Mental Disorders, Goodmayes—Jun M O, £350.

Liverpool Royal Children's Hosp, Myrtle Street—Res. Cas. O., at rate of £250

Middlesex Hosp, W 1—Hon Dental Surgeon

Newcastle-upon-Tyne, Royal Victoria Infirmary—Hon Phys.

Northamptonshire County Council—Asst county M O and district M O H, £800

North Riding of Yorkshire County Council—Deputy County M O H and Deputy School M O., £750

Preston and County of Lancaster Queen Victoria Royal Infirmary Res Surg O, £300

Reading, Royal Berkshire Hosp.—Surg Reg

Rochdale Infirmary and Dispensary—H P, £150

Stafford, Staffordshire General Infirmary—H P., £150

Swindon, Swindon and North Wilts Victoria Hosp—Hon surgeon to ear, nose and throat dept

Truro, Royal Cornwall Infirmary—H S. to Orthopædic and Fracture Dept, £120

Wolverhampton, New Cross Hosp and Institution—Asst. (Deputy) M O, £350.

The Chief Inspector of Factories announces the following vacancies for examining surgeons Stanford-le-Hope, Essex; Presteign, Radnor; Handsworth, York; and Abercrave, Brecon

Births, Marriages and Deaths

BIRTHS

BRYAN—On Oct. 8, at Gahini, Africa, the wife of Dr T. B L Bryan—a daughter

CAMPBELL.—On Oct 15, at Dundee, the wife of Mr. W. G Campbell, F.R C.S—a daughter

FIFE—On Sept 16, at Dehra Dun, U P, India, the wife of Captain J. Gordon Fife, I M S—a son

MORRIS—On Oct 12, at Dumfries, the wife of Dr W. I C Morris—a daughter

RICHARDSON—On Aug 28, at Farnham, Surrey, the wife of Dr. J. D Richardson—a son.

MARRIAGES

DODS—HAYES—On Oct 14, at Richmond, Alan Sydney Dods, M B, to Kathleen Mary Hayes

JONES—RAWLINS—On Oct. 14, at Bristol, John Edgar Vaughan Jones, M B, of Budleigh Salterton, to Doreen Elsie Rawlins, of Southampton

MCKEON—THIERSCH—On Oct 7, at Newcastle upon Tyne, James Aloysius McKeon, M D, to Katherine Vera Thiersch

DEATHS

CORNISH—On Oct 12, at Dorking, Sydney Cornish, M D. Lond

FENWICK—On Oct. 14, in London, Bedford Fenwick, M D. Durh, aged 84

FORSTER—On Oct. 11 at Northlew, Devon, Major General William Charles Hughan Forster, C I E, M.B Edin, I.M.S (retd)

PITTS—On Oct 15, at Mount Vernon Hospital, Northwood, Arthur Thomas Pitts, D S O., M R C S, L D S, aged 58.

ROBERTS—On Oct 9, at Brighouse, Frank Allan Roberts, M.D. Lond

SUTHERLAND—On Oct 10, at Amersham, George Alexander Sutherland, C B E, M D Edin, F R C P, aged 78

THOMAS—On Oct. 9, at Newport, Mon, Thomas Morrell Thomas, M D, M S Lond, aged 68

NOTES, COMMENTS AND ABSTRACTS

SULPHANILAMIDE AND THE EYE

SULPHANILAMIDE is under trial for the treatment of certain inflammatory disorders of the eye, such as uveitis, some forms of chronic conjunctivitis (including *trachoma*), and *panophthalmitis* Bellows and Chinn[1] have produced some interesting facts in connexion with the distribution of sulphanilamide in the various ocular tissues after the administration of a single dose by mouth , the penetration in the eye after divided therapeutic doses , the action of heat and chemicals on the concentration of sulphanilamide in the aqueous humor, and the effects of local application of this drug to the eye by dusting it on to the conjunctiva and cornea and by injecting a solution of it beneath the conjunctiva Their experiments on animals show that sulphanilamide penetrates the ocular tissues rapidly, traces being found 15 minutes after ingestion The order of maximal penetration seems to depend on the vascularity of the tissue , for instance, an hour after the administration of a large single dose diminishing concentrations of the drug were found in the chorioretinal tissues, the corneoscleral tissues, the aqueous, the lens, and the vitreous, in that order The maximal concentrations were reached in the corneosclera at the end of four hours , *in the blood*, aqueous, and vitreous at the sixth hour , and in the lens, choroid, and retina at the twelfth hour Forty-eight hours after the ingestion of the drug the lens had the highest concentration The most rapid rise in the concentration of sulphanilamide was between the second and third hours in all the ocular tissues except the lens, in which it took place between the fourth and sixth hours The tissues which contained the higher concentrations were the quickest to lose the drug Thus the lens which had a relatively low concentration, retained it longest and at the end of forty-eight hours contained 2 5 mg per 100 c cm.—more than thrice the amount in the other ocular tissues

Sulphanilamide 0 075 g per kg of body-weight was administered daily to rabbits in four divided doses at 8 A M noon 6 P M , and 10 P M The eyes were removed for estimation of the contents of the drug in the various ocular tissues at the end of one, two, four, and six days and the blood was examined for this purpose at the same time The highest concentration was 3 5 mg per 100 c cm of blood at 10 P M and the lowest 1 4 mg at 8 A.M , the time at which the eyes were excised These readings are below the blood level of 5–10 mg per 100 c cm advocated for therapeutic action The fall in the tissue concentration of sulphanilamide from six to twelve hours after administration seems to be slight , therefore Bellows and Chinn suggest that the administration of sulphanilamide in two doses (at 9 A M and 5 P M) instead of four would be as effective

They found that heat and the administration of chemicals such as ethyl morphine hydrochloride, atropine and physostigmine had no effect on the concentration of sulphanilamide in the aqueous but that acetyl β methylcholine chloride (Mecholyl) led to an increase of concentration over the control values, as also did the effect of a paracentesis of the anterior chamber followed in half an hour by a second paracentesis The local application of sulphanilamide dusted on to the conjunctiva and cornea causes some irritation and the drug does not penetrate to any appreciable extent After subconjunctival injection of the drug the aqueous concentration was far below that which followed oral administration Sulphanilamide was found in the tears of two patients who were receiving 3 g daily ; in one patient three hours after the administration of 1 g of the drug the tears contained 1 5 mg per 100 c cm , and seventeen hours after a similar dose the concentration was 0 8 mg per 100 c cm These experiments show the permeability of all the ocular tissues in some degree to sulphanilamide

THE HOME DOCTOR

THOSE feeling the need of distraction in these troubled times might do worse than turn for it to that breezy man-of-the world, Dr Victor Heiser In his latest book,[1] written in an engagingly chatty style, he writes of what he considers are the things that matter in the pursuit of health The lay public, as he truly points out, lives amid a welter of information about health, most of it unscientific and contradictory —What shall it do to be saved ? Dr Heiser refuses to accept pronouncements on health, be they never so ponderously delivered, which have no scientific basis of fact, and urges the reader to do likewise " One of the truest rules of biology," he says " is that there is no 100 per cent , you yourself may be an exception to any of the accepted conclusions " In the words of Sir Francis Bacon, which Dr Heiser quotes, " a man's own observation, what he finds good of, and what he finds hurt of, is the best physic to preserve health " This cheerful book is to be warmly commended to a generation all too apt to flit lightly from fad to fad

UPHILL JOURNEY

Miss Elizabeth Echlin has been, from an early age, a martyr to ill health, which began with a long period of undiagnosed abdominal tuberculosis All her life, it seems, she has been in and out of the hands of doctors and surgeons , nor have poverty and the urgent necessity of earning a livelihood made her lot any easier The account of her sufferings given in her book (Keep Off—Death ! London William Hodge and Co 1939 Pp 336 8s 6d) leave no doubt as to her courage, but the style is all too reminiscent of those wordy and highly coloured histories delivered with such relish by the more neurotic type of patient Apart from the beneficent effect upon the writer of this kind of mental catharsis, it is open to doubt whether any useful purpose is served by these purely subjective records of disease backed neither by scientific knowledge nor philosophic detachment

ELIMINATING SKIN-GRAFTING DIFFICULTIES

Dr Philip Weatherbe, surgeon to the Children's Hospital, Halifax, N S , writes —10 per cent tannic-acid solution, applied to the raw area, from which the grafts have been taken settles one difficulty Paraffin mesh tissue, applied over the newly grafted area and fixed with ribbons of adhesive strapping in order to press and hold the grafts in position, ensures the " taking " of the graft To apply dripping wet boric lint over the mesh and hermetically seal in this moisture with a piece of oiled silk on top of the lint will most certainly eliminate the possibility of suppuration The oiled silk should be fixed in place with adhesive strapping The dressing should not be removed for at least ten days when a fresh one is applied, in like manner The dressing is again changed at five-days intervals until complete healing has occurred The application of this method to difficult cases such as webbed fingers has proved its success over others The tannic acid scab drops off within a fortnight, leaving no scar

WANTED—A SKELETON

Mr Macleod Yearsley, F R C S writes —Would any of your readers give, or lend for the duration of the war an articulated skeleton for use in first aid classes ? I should be most grateful if anyone willing to do either would communicate with me at " Winscombe " I thorpe Close, Gerrards Cross

---

[1] Bellows, J G and Chinn H , *J Amer med Ass* 1939 112 2023

[1] You're the Doctor By Victor Heiser M D *London* Jonathan Cape 1939 Pp 331 [illegible] 6d

SULPHUR IN FOODS

THE composition of our more usual foods is beginning to be fairly well known, though it is not always easy to find the facts one wants. Information as to the sulphur content, however, remains scanty, and the figures available are not consistent. The differences are no doubt partly due to variability of composition, but some of the analytical methods used are of limited applicability, and some of the data were obtained on material which had been dried and may have lost sulphur in the process. The figures given in a paper by Margery Masters and R. A. McCance in the *Biochemical Journal* (August, 1939, p. 1304) will therefore be welcomed, especially as Miss Masters (*Ibid*, p. 1313) has fully investigated the determination of sulphur by well-known methods and by a new one based on reduction to H_2S instead of oxidation to H_2SO_4, and the determinations have been made both on fresh and on dried materials. Of over 300 foods examined only 0·1 per cent. contained as much as 100 mg. of sulphur per 100 g. of undried food, and in many of these a high protein content was probably responsible for a large proportion of the sulphur. Fish, meat, and cheese are typical examples. The ratio of nitrogen content to sulphur content of meats varied only from 13·7 to 17·8, the average being 15·2, which is of the same order as in most proteins. Sulphur is said to be present as cystine, methionine, and stable organic and inorganic sulphates in most foods. A striking example of the last is carragheen moss, which contained no less than 5·46 per cent. of sulphur, mostly as SO_4. Mustard, which contains allyl thiocyanate, yielded 1·28 per cent. of sulphur (1280 mg./100 g.). Of organs the liver contained most sulphur and least water: calves' liver 66·8 per cent. of water and 264 mg./100 g. of sulphur, and ox liver 69·0 per cent. and 263 mg./100 g. respectively, the N/S ratio being 11·1 and 11·8. Sweetbread and tripe with 71·1 and 81·6 per cent. of water contained 98 and 103 mg./100 g. of sulphur and had N/S ratios of 20 and 20·6 respectively, whereas sheep's brain with sulphur and water contents of the same order (80·1 and 108) had a much lower N/S ratio (14·9). Other organs varied between these limits. Shellfish, with sulphur contents of 262–401 mg./100 g., yielded low N/S ratios (5·6–11·2). It is suggested that sulphates from sea water may in part be responsible for the high sulphur content.

The sulphur content of fresh apricots, figs and peaches was respectively 6·1, 12·9, and 5·7. Dried fruits of the same kinds contained 164, 80·8 and 240 respectively. Some of the difference must be due to an increase in dry matter generally, and if figs are deemed to contain as much water as do turnips (about 90 per cent.), drying to 40 per cent. of water would allow for the increased sulphur. But apricots and peaches would have to contain over 95 per cent. of water and to be dried completely for the natural sulphur content to be responsible for the high values obtained. A more probable explanation is the use of sulphur dioxide as a preservative.

STAFF OF THE E.M.S.

The following is the complete and up-to-date list of group officers and regional hospital officers of the Emergency Medical Service.

LONDON GROUP OFFICERS

Sectors I and II.—Mr. Russell Howard, Essex County Hospital, Hermon Hill, Wanstead.

Sector III.—Sir Girling Ball, Science Block, Mill Hill School, London, N.W. 7.

Sector IV.—Dr. W. J. Pearson, Brockley Hill House, Brockley Hill, Stanmore.

Sector V.—Dr. H. E. A. Boldero, Charlbury, Chorley Wood Road, Rickmansworth.

Sector VI.—Sir Charles Wilson, Cave House, High Street, Uxbridge.

Sector VII.—Mr. C. H. S. Frankau, Percy House, P.A.I., Twickenham Road, Isleworth (Middlesex C.C.).

Sector VIII.—Mr. C. Max Page, County Hall, Kingston-upon-Thames (Surrey C.C.).

Sector IX.—Mr. John Hunter, "Sherwood," adjoining Horton Mental Hospital, Epsom (L.C.C.).

Sector X.—Prof. T. B. Johnston, Boundary House, Orpington P.A.I. (Kent C.C.).

PROVINCIAL GROUP OFFICERS

Birmingham.—Prof. L. G. Parsons, Public Health Department, The Council House.

Liverpool.—Mr. K. W. Monsarrat, The Medical Institution.

Manchester.—Prof. A. H. Burgess, 17, St. John Street.

Sheffield.—Dr. A. G. Yates, 53, Wilkinson Street.

Leeds.—Mr. Harold Collinson, 27, Park Square.

Bristol.—Prof. Hey Groves, 25, Victoria Square, Clifton, Bristol.

Newcastle.—Mr. F. C. Pybus, Windsor House, Jesmond Road.

Hull.—*Mr. T. Ritchie Rodger, 21, Albion Street.

Bradford.—Dr. J. F. Allan, Bridge End, Low Baildon, Shipley, Yorks.

Stoke-on-Trent.—*Dr. E. C. Myott, 10, Brook Street.

Brighton.—Mr. L. A. Parry, 5, The Drive, Hove.

Walsall.—*Dr. Robert Forrest, "Halmot," Broadway, Walsall.

Reading.—*Dr. G. O. Lambert, 9, Eldon Square.

Oxford.—*Major-General Sir Robert McCarrison, 41, St. Giles.

Exeter.—*Colonel Ransom Pickard, 1, Barnfield Crescent.

Nottingham.—*Dr. W. T. Rowe, 8, The Ropewalk.

Leicester.—*Dr. J. P. W. Jamie, Public Health Department, 17, Friar Lane.

Coventry and Warwick.—*Mr. G. G. Alderson, Offchurch, Leamington.

Derby.—*Dr. F. G. Lescher, 307, Burton Road.

Sunderland.—*Dr. P. C. Arnold, 13, Grange Terrace.

Cambridge.—Prof. J. A. Ryle, Department of Medicine, University of Cambridge.

WALES

Cardiff.—*Dr. Robert Armstrong, Royal Infirmary, Newport Road, Cardiff.

REGIONAL HOSPITAL OFFICERS

No. 1. *Northern Region.*—Colonel H. T. Bates, Clarendon House, Clayton Street West, Newcastle-upon-Tyne.

No. 2. *North-Eastern Region.*—Dr. C. F. Good, 8, The Headrow, Leeds.

No. 3. *North Midland Region.*—Dr. G. C. Kelly, 28a, Regent Street, Nottingham.

No. 4. *Eastern Region.*—Dr. A. L. Banks, University of Cambridge, Tennis Court Road, Cambridge.

No. 5. *London Region.*—Dr. J. N. Dobbie, 21, Cromwell Road, S.W. 7.

No. 6. *Southern Region.*—Dr. A. L. Dykes, 17, Bath Road, Reading.

No. 7. *South-Western Region.*—Dr. C. R. Nicholson, 3, Woodland Road, Tyndall's Park, Bristol.

No. 8. *Wales Region.*—Dr. A. Trevor Jones, Welsh Board of Health, Cathays Park, Cardiff.

No. 9. *Midland Region.*—Colonel A. B. Ward, 139, Hagley Road, Edgbaston, Birmingham 16.

No. 10. *North-Western Region.*—Dr. W. H. C. Patrick, Sunlight House, Quay Street, Manchester.

No. 11. *Scottish Region.*—Department of Health for Scotland, Princes Street, Edinburgh.

No. 12. *South-Eastern Region.*—Dr. W. S. M. Craig, The Chestnuts, Grove Hill Road, Tunbridge Wells.

* On a part-time basis.

CORRIGENDUM.—"Life's Beginning on Earth," by Professor Beutner, which was reviewed in our columns on Oct. 7, is published by Messrs. Baillière, Tindall and Cox and not by Messrs. Chapman and Hall.

ADDRESSES AND ORIGINAL ARTICLES

CHEMOTHERAPY OF MENINGOCOCCAL MENINGITIS *

A REVIEW OF 147 CONSECUTIVE CASES

By H Stanley Banks, M D Glasg, D P H
MEDICAL SUPERINTENDENT OF THE PARK HOSPITAL (L.C.C.)

Since the publication of a preliminary article on the use of serum and sulphanilamide in acute meningococcal meningitis (Banks 1938) some 55 additional cases have been treated in this hospital by chemotherapy alone The whole of the material in which chemotherapy has been employed with or without serum may now be usefully reviewed in an attempt to assess the value of sulphanilamide and M & B 693 These two drugs were employed without selection, at first in alternate series of cases admitted, and later, when the number in each series became about equal, as far as possible in alternate cases admitted The M & B 693 series is the larger because treatment with this drug had in some cases been started before admission, thus preventing strict alternation The extended experience of chemotherapy alone provides new data on which a truer estimate of the comparative and auxiliary value of serum in meningococcal meningitis may be formed

Serum and Sulphanilamide Series

Combined serum and drug treatment was adopted during the period May, 1937 to March, 1938, and most of the cases were included in the preliminary article This treatment was not further pursued, but 9 additional cases which had received varying amounts of serum in general hospitals during the day or two before admission have to be considered Of these, 3 had quite small amounts of serum and on admission the cerebrospinal fluid still contained meningococci in direct smears and culture Accordingly, as chemotherapy alone was used from admission, they have been included in the appropriate drug group The remaining 6 cases treated with serum before admission and with sulphanilamide thereafter showed no organisms in the cerebrospinal fluid on admission, although polymorph cell counts were still high In these the effect of serum cannot be disregarded, and they have accordingly been placed in the combined series This series has been thoroughly reviewed and now consists of 65 cases with 8 deaths, a fatality rate of 12 3 per cent allowing for certain exclusions mentioned below (see table II)

DOSAGE AND ADMINISTRATION

The serum used was with few exceptions "meningococcus antitoxin" the route intravenous, or intraperitoneal in infants, and the dosage high, averaging about 150 c cm in one or two injections The intrathecal route was not employed as a routine because of the disadvantages specified in the former article, and also because sulphanilamide given in high initial dosage appears rapidly in adequate concentration in the subarachnoid space No less than 32 of the 65 cases, however, had at least one intrathecal injection of serum of various makes before admission

Sulphanilamide was employed exclusively in this series except for 1 case treated with M & B 693 A scheme of dosage according to age groups was gradually evolved (Banks 1938) This provides for a high initial dosage during the first two to three days' treatment and a gradually diminishing dosage for five or six days thereafter, the drug treatment being completed in eight or nine days Age periods are more convenient as a basis of dosage than body weight in an acute disease, and provided that allowance is made for the more extreme variations they are quite satisfactory in practice With certain early exceptions, the dosage scheme adopted during the first two to three days, whether with or without serum was as in table I

TABLE I—DOSAGE OF SULPHANILAMIDE DURING FIRST TWO TO THREE DAYS

Age period in years	*0 —*	*2 —*	*5 —*	*10 —*	*15 —*
Daily amount in grammes	3	4½	6	7½	9

The daily dosage during the initial period of about three days thus ranged from 3 to 9 g The minimum of 3 g daily is well tolerated by infants of two months and upwards Occasionally the maximum of 9 g was raised to 10½ g in the first day for tall heavy adults The daily dosage was divided into six equal portions at four-hourly intervals day and night, the patient being aroused at night for this purpose Latterly the practice was adopted of doubling the first two single doses, 1–3 g being then given instead of ½–1½ g The total amount of drug for an adult ranged from 45 to 55 g

The oral route is the most convenient and any other is rarely required With sulphanilamide vomiting is uncommon and is not persistent If an occasional dose is vomited in whole or part another should be given as soon as the patient is settled In 2 cases head retraction was so extreme that swallowing was mechanically obstructed for from twelve to twenty-four hours During this period parenteral administration of the drug and of fluids was required Sulphanilamide was actually given as a 14 per cent oily suspension intramuscularly (A better parenteral method now available is deep intramuscular injection of the sodium solution of M & B 693 or intravenous injection of a 1 in 10 dilution of it) In comatose cases the swallowing reflex is rarely abolished and the tablets crushed to a fine powder can usually be given suspended in water or milk by nasal or pharyngeal tube Intrathecal administration of a 0 5 to 0 9 per cent solution of sulphanilamide was tried in a few cases but no advantage over the oral route could be observed The amount of the drug that can be given in this way is minute and its level in the cerebrospinal fluid quickly falls to that of the blood

In nearly all cases the level of absorption of the drug into the cerebrospinal fluid was determined biochemically each day during the first four or five days Some variations in the amount of sulphanilamide absorbed were observed in certain cases which were approximately equal as regards age, body weight and dosage Nevertheless there was abundant evidence to show (1) that even in difficult cases associated for example with coma delirium or vomiting adequate amounts of the drug were in fact administered by mouth or tube, and (2) that the dosage outlined above was adequate to cover individual variations in absorption, and to produce an efficient level of circulating drug in the blood and cerebrospinal fluid The cerebrospinal fluid level in the case of sulphanilamide is usually only slightly less than that of the blood Data were given in my former paper, and also by Allott (1939) T opinion therein expressed that a minimum level of 3–5 mg per 100 c cm. of cerebrospinal fluid should be attained within twenty-four hours and maintained for at least three days was confirmed by subsequent work Some evidence to be given below suggests indeed that the higher figure of 5 mg per 100 c cm is the preferable standard for sulphanilamide This is usually attained in twelve hours in small children and in twenty-four hours in adults with the given scheme of dosage In the earlier period of the investigation lower dosage was occasionally employed Allott (1938) gives the cerebrospinal-fluid concentration values for 36 of these cases Of these the concentration never reached 5 mg per cent in 12, and of the 12 no less than 3 died. Amongst the remaining 24 there was only 1 death

---

* This paper formed the basis of a contribution to the annual meeting of the British Medical Association 1939

FAILURE WITH LOW DOSAGE

Much interest has been aroused by the excellent results obtained with sulphanilamide and M & B. 693 in minute dosage under field conditions in the Sudan (Somers 1939, Bryant and Fairman 1939) These authors, however, have wisely pointed out that "it does not follow that the results of treatment here would have their counterpart in Europe," and again, "from our experience we consider that the drug should be pushed in big doses from the very first" The following brief notes on 6 cases of "failure" suggest that dosage in amount or duration lower than that of the standard scheme is not to be relied upon when sulphanilamide is the drug employed:

CASE 1—Male, aged 5 months First case treated. Dose 1 g. daily for ten days, then 2 g, and later 4 g daily. Cerebrospinal fluid never became free from organisms Died 17th day

CASE 2.—Female, aged 5 months Dose 3 g. daily, but drug stopped after three and a half days C s.f then sterile but fatal relapse occurred some days later P M.: meningeal exudate with meningococci over vertex and base. Serum 90 c cm also given on admission intraperitoneally

CASE 3—Male, aged 2 years Dose 3 g daily commenced 10th day of disease; drug not taken well; this was confirmed by the c s f estimation, which amounted to only 2 mg per 100 c.cm. in nineteen hours after treatment was begun, and 4 mg in fifty-four hours The fluid was not sterile till seventy-two hours after treatment began, and the organisms reappeared four days thereafter and persisted many weeks. The child entered a long chronic stage of the disease with hydrocephalus; ultimate slow recovery occurred after many months Serum 120 c cm given intraperitoneally a week after the drug was started.

CASE 4.—Female, aged 15 years Dose 6 g daily for only two days, then reduced to 3 g daily (too low) for next three days; thereafter (on 6th day of treatment) raised to 6 g. daily. C.s f level too low—only 0·8 mg after seventeen hours and maximum of 4·9 mg only attained after seven days The fluid was sterile after twenty-four hours, but meningococci reappeared on the 4th day of treatment and persisted for weeks, although the drug was then given in higher dosage The organisms apparently became "drug fast" owing to low initial dosage This case became chronic and was fatal from hydrocephalus after three and a half months. Serum to a total amount of 500 c cm. was also given from admission intravenously and 20 c cm. intrathecally.

CASE 5.—Female, aged 26 years. Standard dose 1·5 g. four-hourly given only for twelve hours, then reduced to 0·5 g. four-hourly—(too low) for four days Organisms seen in direct smears but cultures sterile twelve and thirty-six hours after treatment commenced; thereafter they grew at first scantily, then profusely till death on 13th day of treatment. Organisms apparently became "drug fast" owing to low dosage after the first twelve hours Serum was also given, 360 c.cm. intravenously, 20 c.cm. intrathecally and 20 c.cm. into the lateral ventricles.

CASE 6—Male, aged 27 years. One of the earliest cases. Dose only 2 g. daily; serum 420 c cm. intravenously; 20 c.cm. intrathecally and 20 c cm intracisternally The acute stage cleared up but a relapse occurred three weeks later. The relapse cleared up rapidly on the scale dosage of sulphanilamide.

All 6 of these cases were failures, absolute or relative, and a common feature was low dosage. Dosage was either initially lower than the standard, or reduced or stopped too soon. Except in case 1, where the c.s f. was never sterile, meningococci reappeared after a day or two of apparent sterility of the fluid and were then uninfluenced by higher dosage. Initial low dosage tends to make the organisms drug-fast.

AUXILIARY VALUE OF SERUM

In 4 of these 6 cases intensive intravenous dosage with serum did not apparently compensate for inadequate dosage of the drug This was somewhat unexpected as these cases were not of exceptional severity or unfavourable ages Cases 4 and 5 are particularly instructive No adjuvant effect of even large doses of serum given intravenously could be demonstrated, when the dosage of the drug was inadequate.

A synergistic action of serum and drug has been suggested by the laboratory experiments of Brown (1937) and Branham and Rosenthal (1937) with meningococci, Fleming (1938) with pneumococci, De and Basu (1938) with staphylococci and Loewenthal (1939) with hæmolytic streptococci. Fleming amongst others has shown that the drug is not of itself bactericidal but merely bacteriostatic and that the destruction of invading organisms must be completed by the immunity mechanism of the host On the basis of this experimental work the combined action of serum and drug has often been advocated in the treatment of human infections. But not only the cases mentioned above but the whole of the data pre

TABLE II—SERUM AND SULPHANILAMIDE *

Age-group	Cases	Bact group				Deaths	Fatality rate (per cent)
		I	II	Inagg	Not bact. verified		
0 –	10	2	5	1	—	1	10
1 –	10	3	3	—	—	2	20
5 –	22	7	1	—	1	1	4·5
20 –	17	6	3	—	5	2	11·7
40 –	3	2	1	—	—	1	33
50 –	1	1	—	—	—	—	—
60 +	2	—	—	—	—	1	50
—	65	21	13	1	6	8	12·3

* One of these cases was treated with M. & B. 693

Excluded cases—Recovering on admission 2, dying within five and twelve hours of admission 2, subarachnoid basal block, admitted in 5th week of disease 1; dying from intercurrent ascending pyelocystitis 1.

Deaths—Cases 2, 4 and 5 above appeared to be associated with inadequate dosage of sulphanilamide The other causes of death were age 1 year, thrombosis of superior longitudinal sinus, age 2½, convulsions two days after admission; age 38, slow hydrocephalus, age 45, pneumonia, age 62, slow hydrocephalus

Complications—Deltoid paresis 1; relapse 2; temporary deafness 4, permanent absolute deafness 3; squint (ext rectus paresis) 1, hemiplegia (temporary) 2 sented in tables II, III and IV lend no support to this view in the case of meningococcal meningitis and/or septicæmia

Combined serum in intensive intravenous dosage, and sulphanilamide in somewhat varying dosage (table II) does not turn out to be quite so favourable as adequate dosage of sulphanilamide alone or M & B 693 alone, or the two drugs in combination In a series of 72 acute cases of all grades of clinical severity and representative of both bacteriological groups, chemotherapy alone has been found to be fully curative and serum as an auxiliary to be neither necessary nor even desirable, since serum administration is troublesome, expensive and not devoid of discomfort and risk On the other hand chemotherapy is easy to administer and cheap, and its only practical danger, agranulocytosis, is remote if the period of administration is restricted to nine days In the present series no sign of even leucocytopenia was discovered

Chemotherapy Alone

In tables III, IV and V particulars are given of the treatment of 72 cases by chemotherapy Of these 31 were treated with sulphanilamide without a death, 36 with M & B 693, 1 case being fatal, and 5 with a combination of the drugs without a death For the purpose of *assessing the effect of treatment, 4 cases,* fatal, have been excluded, particulars being given under each table The cases comprised in the tables, together with those excluded, represent the whole of the verified cases admitted to the hospital during the period May, 1937, to September, 1939 Of the sulphanilamide cases, 1 had septicæmia only when treated there was a profuse rash, a positive blood culture and normal c s f , meningitis did not develop In a similar case, a slight meningeal reaction developed (600 polymorphs per c mm and no organisms) In the chemotherapy series the gross fatality rate was 5 cases out of 76 or 6 6 per cent , which is probably now a fair measure of the mortality of the disease as it is seen in London For cases adequately treated with either or both of these drugs, however, the case fatality rate in 72 cases was no more than 1 4 per cent

TABLE III—SULPHANILAMIDE

Age group	Cases	Bact group			Deaths
		I	II	Not bact verified	
0 —	2	—	1	—	—
1 —	10	4	2	—	—
5 —	9	3	3	1	—
20 —	8	5	1	—	—
40 —	1	—	1	—	—
50 +	1	1	—	—	—
—	31	13	8	1	—

Excluded cases —(1) Case 1, first case treated, quite inadequate dosage (2) Aged 44 second case treated, inadequate dosage, c s f never free from organisms sulphanilamide level in c s f did not reach 5 mg per 100 c cm until 6th day of treatment, severe intercurrent disease, *pneumonia cirrhosis of liver, &c , also present* Serum 120 c cm i v on 6th day of treatment had no effect on the course of the disease (3) Aged 13, died two hours after admission, just after lumbar puncture with symptoms of sudden failure of the respiratory centre

Complications - Case 3, hydrocephalus with slow recovery

COMBINED CHEMOTHERAPY

The two drugs were used in combination, in 5 cases all of which made a rapid recovery Of these, 2 men and 1 woman aged twenty-three and thirty six and twenty-five respectively, all moderate to severe

TABLE IV—M & B 693 *

Age-group	Cases	Bact group			Deaths
		I	II	Not bact. verified	
0 —	5	—	3	—	—
1 —	10	7	1	1	—
5 —	13	3	3	1	—
20 —	6	4	—	—	—
40 —	1	1	—	—	1
50 +	1	—	—	—	—
Total	36	15	7	2	1

* Of the 36 cases 11 were treated with intramuscular injections of the sodium solution 25 or 33⅓ per cent. (table VI and fig 2)

Excluded case —Aged 2½, 4th day of disease, died three hours after admission, after lumbar puncture, sudden failure of respiratory centre

Death —Aged 40, very severe 4th day case with deep coma and stertor from admission Treated with sodium solution of drug, dosage rather low, level of drug in c s f in thirty six hours only 3 1 mg per 100 c cm The c.s f forty hours after treatment commenced still contained meningococci in films but not in culture Serum 120 c cm i v and 20 c cm i t given forty hours after chemotherapy commenced—probably too late to be taken into account Died on 4th day of treatment

P.M meningeal exudate with dilatation of ventricles

Complications —(1) Absolute deafness, in a boy of 13 years, treated with low dosage of drug (4 g daily) before admission for 2½ days c.s f sterile on admission, but level of drug in c s f only 1 2 mg per 100 c cm seventy two hours after treatment commenced, maximum 4 2 mg per 100 c.cm reached after seven days

(2) Partial deafness and L vestibular nerve paresis in a man of 25 years Dosage rather low (6 g daily), c s f level 3 7 mg per 100 c.cm in forty four hours, 4 3 mg in sixty-eight hours

(3) Convulsions of Jacksonian type some days after treatment commenced in 2 cases aged 9 months and 9 years respectively complete recovery

(4) Bulbar paresis (transitory) for a few days in a girl aged 10 years Complete recovery

TABLE V—COMPARATIVE CLINICAL AND BACTERIOLOGICAL DATA

Cases	Serum and sulph	Sulph	M. & B 693	Sulph and M & B 693
	65	31	36	5
Clinical classification				
Mild	11	5	4	—
Moderate	35	17	16	2
Severe	15	8	15	3
Very severe	4	1	1	—
Eruptive	17	10	9	—
Duration of symptoms *before treatment*				
1–3 days	17	10	12	3
4–6 days	34	15	17	2
7 days +	14	6	7	—
C.s.f free from organisms				
12–24 hours smears	46	21	31	[illegible]
— culture	48	26	[illegible]	[illegible]
24–48 hours smears	59	30	35	[illegible]
— culture	57	39	33	5
48–72 hours smears	[illegible]	[illegible]	35	5
— culture	[illegible]	33	35	5

cases, were treated with M & B 693 in scale dosage for about forty-eight hours, and thereafter with sulphanilamide in similar dosage which was gradually reduced.

The c s f. was in each case sterile within twenty-four hours, but the drug was changed in the men on account of nausea and vomiting, and in the woman because of vomiting, depression, "weariness" and insomnia These symptoms disappeared promptly after the change of drug to sulphanilamide, the patients felt better, the c s f remained sterile, and the cell-count rapidly dropped. There was, of course, an increase of cyanosis and also mild mental confusion at times, but as the dose of sulphanilamide was rapidly diminished these side effects cleared up in a few days.

The fourth case, an infant aged nine months, a severe case with convulsions and a group II infection, had the reverse combination—viz, sulphanilamide for forty-four hours in scale dosage followed by M. & B 693 The c.s f in this case was also sterile within twenty-four hours, and the drug was changed because rapid respirations suggested a possibility of latent pneumonia, although chest signs were negative. The c s f. remained sterile and the cell-count rapidly dropped. Pneumonia did not develop, but on the fifth day of treatment convulsive twitchings of the right side of face and arm persisted for some twelve hours Thereafter the infant rapidly recovered The fifth case was a girl aged 10 years who vomited frequently after sulphanilamide Intramuscular injection of the sodium salt of M. & B. 693 was substituted with excellent results

TABLE VI—SULPHANILAMIDE LEVEL IN C S F (mg. per 100 c cm)

Titre	12–20 hours	20–44 hours
Average	5 8 *	10 7 †
Highest	19 0	34 0
Lowest	1 8	3 6

* 22 cases † 19 cases

COURSE OF THE DISEASE

Chemotherapy in adequate dosage not only saves the patient but markedly affects the course of the disease. The temperature generally returns to normal and acute symptoms and most of the rigidity clear up in two to six days There is often a marked amelioration within twenty-four hours, especially in those delirious or semicomatose on admission. Nursing of these cases, formerly so difficult, is generally quite easy after the first twelve hours Some form of restraint may be necessary during this period. A bed with cot sides is useful. Fluids are restricted to 3 pints daily for adults since too much fluid reduces the concentration of the drug in the tissues Lumbar puncture rarely requires a general anæsthetic, especially after the first day The c s.f is usually sterile within twelve to twenty-four, or at most forty-eight hours, but in a small proportion (10–20 per cent) meningococci which will not grow in culture may be seen in direct smears of the centrifuged deposit during this period (table V) The cell-count falls very rapidly after forty-eight hours, commonly dropping from about 10,000 cells per c mm to 500 cells per c.mm. or less on the third or fourth day of treatment At the same time the proportion of mononuclears increases and is commonly 90 per cent on the fifth or sixth day of treatment In from ten to fourteen days the c s f is usually quite normal, but occasionally shows a persistence of lymphocytes up to 30 per c mm for some weeks No more than 3 or 4 lumbar punctures are required in the average case and then only as a guide to treatment. Provided that no intrathecal serum has been given, relief of pressure and drainage of fluid as a therapeutic measure is very rarely required after the first puncture. The *rapid* clearing of the c s f indicates a rapid absorption of the meningeal exudate (a fact confirmed at several post-mortem examinations in the serum and sulphanilamide series) and a consequent freedom from relapses and complications due to pressure and adhesions of the exudate. The data in tables II, III, IV and V show that the various series were clinically and bacteriologically comparable and that bacteriological groups I and II infections were equally responsive to chemotherapy.

TABLE VII—M. & B. 693 CONCENTRATION IN C.S F (mg. per 100 c cm.)

20 cases; tablets by mouth			11 cases; sodium solution intramuscularly		
Age	12–20 hours	20–44 hours	Age	12–20 hours	20–44 hours
5/12	7 0	7 0	6/12	3 1	2 7
5/12	6 6	12 5	9/12	0 5	2 0
9/12	5·2	10 6	1 3/12	2 4	1 4
1 2/12	2 5	4 9	3 9/12	3 6	4 2
1 4/12	4 2	10 1	5	4 4	2 8
2 6/12	—	2 8	5 9/12	1·8	1·8
2 6/12	—	1 5	18	0 7	1 3
2 10/12	4 4	8 0	26	traces	traces
3	—	5 0	28	0 5	1 5
3	—	8 7	40	1 2	3 1
4	6 0	5 6	51	traces	traces
5 11/12	trace	1 3			
10 6/12	—	4 4			
15	—	1 5			
17	2 0	5 0			
18	3 6	5 1			
18	4 8	4 4			
25	2 0	3 7			
25	2 5	5 9			
29	2 8	3 8			

TABLE VIII—M. & B. 693 LEVEL IN BLOOD AND C S F (mg per 100 c cm)

	Blood		C S fluid	
Titre	12–20 hours	20–44 hours	12–20 hours	20–44 hours
Average	4 4 (*a*)	7 9 (*b*)	3 6 (*c*)	5 4 (*d*)
Highest	9 2	12 1	6 6	12 5
Lowest	0 8	4 3	0 5	1 3
Sodium solution (M. & B 693 soluble)				
Average	2 1 (*e*)	2 6 (*f*)	1 7 (*g*)	1 9 (*h*)
Highest	5 9	5 3	4 4	4 2
Lowest	traces	traces	traces	traces

Cases examined (*a*) 19; (*b*) 7, (*c*) 11, (*d*) 15, (*e*) 5, (*f*) 6, (*g*) 11; (*h*) 11

ABSORPTION OF SULPHANILAMIDE AND M & B 693

The average level of sulphanilamide in the c s f. in 22 cases of the sulphanilamide series in from twelve to twenty-four hours is shown in table VI to have been 5 8 mg. per 100 c cm , and in from twenty to forty-four hours 10 7 mg per 100 c cm There was considerable variation, infants and children having higher values, because they received larger doses than adults in proportion to body-weight. The highest values at the times stated were 19 and 34 mg. and the lowest 1 8 and 3 6 mg. respectively. The latter occurred in 2 cases on dosage lower than the scale, and in neither case was the c s f free from organisms within twenty hours The values in the first forty eight hours are the most important High values at a later date may be comparatively ineffective on account of the development of drug fastness

M & B 693 is rapidly absorbed from the stomach into the blood stream and excreted somewhat more slowly than sulphanilamide Elimination from the blood is completed in just over twenty four hours, and from the urine in about fifty hours (Whitby 1938) Hobson and McQuaide (1938) found some striking individual variations in the capacity to absorb the drug from the stomach They also found that the concentration of the drug in the c s f in meningitis was approximately 56 per cent of that found in the blood This is considerably lower than the corresponding value for sulphanilamide The values obtained by Dr E N Allott in this series (tables VII and VIII) are in substantial agreement with these findings In fifteen to twenty hours the *average* concentration in the blood in 9 cases was 4 4 mg per 100 c cm and in the c s f 3 6 mg for 11 cases In twenty to forty four hours the average blood level in 7 cases was 7 9 mg and the c s f level 5 4 mg for 15 cases The highest and lowest values shown in the table indicate the very considerable variation in absorption that occurred Tables VII and VIII also show the absorption levels in blood and c s f for 11 cases treated experimentally with the sodium solution (M & B 693 soluble) by intramuscular injection The values are all low compared with those above, because, owing to rapid absorption by this route, the dosage employed, weight for weight of drug, was less than half and sometimes only a third of the scale dosage for the drugs given by mouth

In fig 1 typical curves of absorption of M & B 693 into the blood and c s f are shown for 2 cases aged four and seventeen years, on four hourly or six-hourly dosage by mouth These show the c s f concentration to be little more than half of that of the blood The c s f levels are maintained above 3 to 5 mg per 100 c cm for at least three days and then gradually reduced In fig 2 similar curves of absorption are shown for three typical cases aged five, eighteen and twenty-six years, treated with four hourly or six hourly injections of the sodium solution The blood and c s f concentrations here, while considerably lower, show similar relative values One of these curves shows blood and c s f values constantly less than 1 mg per 100 c cm—i e mere traces of the drug In this case the c s f was free from organisms within twenty four hours and recovery was rapid Only 1 case amongst the 11 receiving the sodium solution failed to make a rapid recovery—namely, the fatal case mentioned under table IV The evidence obtained from the series receiving the sodium solution seems to indicate that low c s f concentrations of M & B 693, such as 1–2 mg per 100 c cm or even less are quite efficient in meningococcal meningitis In this respect the drug differs from sulphanilamide where lower concentrations than 5 mg per 100 c cm are distinctly unsafe When M & B 693 was given by mouth in the present series low dosage was not tested

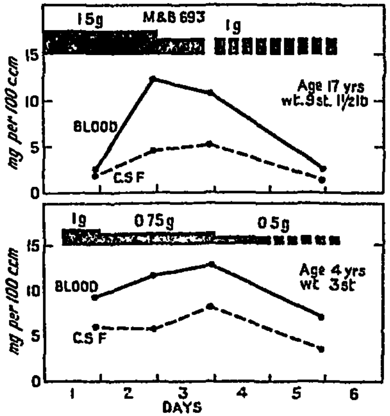


Fig 1 —Amounts of M & B 693 recovered from blood and cerebrospinal fluid in 2 cases receiving the drug by mouth

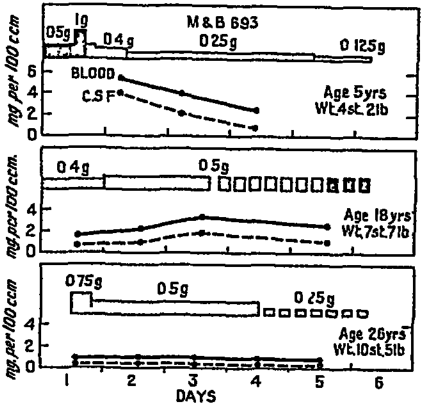


Fig 2—Amounts of M & B 693 recovered from blood and cerebrospinal fluid in 3 cases during administration of M & B 693 (black rectangles) I and M & B soluble (stippled)

TOXIC EFFECTS OF THE DRUGS

The toxic effects met with were all of a minor nature With sulphanilamide on the scale dosage cyanosis constantly appeared within twenty four hours and was generally quite deep in thirty-six hours especially in adults It remained as a rule until the dosage was substantially reduced There is a wide-spread belief that cyanosis is always or usually due to meth or sulph hæmoglobinæmia About half the cases dealt with in this article were examined for these pigments by Dr E N Allott, usually some twenty-four hours after withdrawal of the blood and only negligible amounts were ever found [illegible] McQuaide (1938) were unable to detect either pigment in 6 cases of meningitis Marshall and [illegible] found complete active hæmoglobin in 7 cyanotic patients and considered that the colour [illegible] due to aniline black, a dark oxidative product Similarly, Ottenberg and Fox (1938 [illegible] is due to coloured derivatives of the drug [illegible] the red corpuscles Chesley (1938) found [illegible] in 8 cyanotic patients and [illegible] Marshall and other recent writers that [illegible] importance except perhaps in an occasional patient On the other hand, Bensley and Ross (1937) found about 20 per cent. methæmoglobin in 1 case They continued the drug for sixteen days and the proportion of methæmoglobin did not increase nor was sulphæmoglobin formed. Paton and Eaton (1937) found methæmoglobin in 4 of 19 cases and considered it to be the true toxic result of the drug, and that sulphæmoglobin was only formed when sulphur compounds were available—e g, from the bowel in large amounts

Hartman, Perley and Barnett (1938) reported that they were able to demonstrate the presence of methæmoglobin in every case of cyanosis, and by giving methylene-blue 0 01 g. per kg of body-weight intravenously, or gr. 1–2 orally every four hours obtained reconversion of methæmoglobin to hæmoglobin. Wendel (1939), who was amongst the first to advocate the methylene-blue treatment, found in 100 cases of cyanosis methæmoglobin present in traces in 90 and present to the extent of 15 per cent or more of the total hæmoglobin in 35 cases. It was not, however, proportional to the amount of sulphanilamide in the blood

Such conflicting findings are difficult to reconcile Campbell and Morgan (1939) have recently suggested a possible explanation They state that in examining for methæmoglobin or sulphæmoglobin two precautions are necessary—(1) a dilution of not more than 1 in 5 of the blood must be used, and (2) the specimen should be examined as soon after withdrawal as possible. In cases where the amount of methæmoglobin is not large it may be entirely absent in twelve hours. They consider that with such technique it may be unnecessary to speculate on the possibility of any coloured derivative of aniline being the causal agent of the symptom, since methæmoglobin or sulphæmoglobin is so frequently detected.

In the present series of cases no aperients other than phenolphthalein and liquid paraffin were given, and these but rarely Movement of the bowels was usually obtained when necessary by glycerin enemata or suppositories. No excessive dietary precautions to exclude sulphur were taken, two eggs daily and even onions being given at the height of the cyanosis Except in such conditions as severe anæmia, or dyspnœa from concurrent respiratory disease, early cyanosis was not considered an indication for reducing dosage

Other toxic effects of sulphanilamide were drowsiness, disorientation, mental confusion (probably distinct from that produced by the disease), occasionally hallucinations, and in 2 cases papular rashes. Nausea and vomiting were uncommon.

With M & B. 693, cyanosis was much less marked, but nausea and vomiting were troublesome especially in adults. The older patients also complained of malaise and mental depression Transient hæmaturia, lasting one or two days, was seen in 2 children, aged two and a half and five years, they showed no casts and no hæmatoporphyrinuria. Of these, 1 also had diminished urinary output, 10 oz in twenty-four hours (cf. Southworth and Cooke 1939); the drug was stopped and the condition cleared at once. In one of these cases the drug was resumed without harm after being stopped for twenty-four hours Vomiting was present in both these cases In neither was the concentration in the c.s.f. high, the maximum being 2 5 and 1·8 mg. per 100 c cm. In this connexion, Antopol and Robinson (1939) observed in laboratory animals the formation of uroliths, consisting of needle-like crystals of the acetyl derivative of M. & B. 693. Backhouse (1939) observed the characteristic crystals in the urine of Melanesian natives

It may be said generally that patients on high dosage of sulphanilamide look ill, owing to cyanosis, and those on M. & B 693 feel ill, owing to depression and nausea In the blood no diminution of granulocytes was observed, although counts were frequently made In the acute stage a polymorph leucocytosis was invariably found in these counts A mild secondary anæmia, not necessarily due to the drug, was common

Summary

First, 65 cases of acute meningococcal meningitis were treated with serum in intensive intravenous dosage and sulphanilamide in somewhat varying dosage There were 8 deaths, a case-fatality rate of 12·3 per cent. for treated cases, 13 complications and 3 known sequelæ (deafness). These figures are exclusive of 6 cases in which treatment could not be applied, and of these 4 were fatal The gross mortality from the disease during the currency of this series was, therefore, represented by 12 deaths in 71 cases or 16 9 per cent.

Next, 72 cases, comparable to a high degree, were treated by chemotherapy alone in high dosage, 31 with sulphanilamide, 36 with M & B 693, and 5 with a combination of both drugs. There was 1 death, giving a case-fatality rate of 1·4 per cent for treated cases, 6 complications and 2 known sequelæ (deafness) 4 cases, untreated or inadequately treated, and all fatal, were excluded from this series. The gross mortality from the disease during the currency of this series amounted, therefore, to 5 deaths in 76 cases, or 6 6 per cent

Initial dosage of sulphanilamide sufficient to maintain a c s f. *concentration of 5 mg. per cent for three days and a lesser concentration for a further period of five or six days is the minimum reliable standard. Low initial dosage is distinctly unsafe*

Intensive intravenous serum therapy does not compensate for low dosage of sulphanilamide No evidence *in favour of auxiliary treatment* with serum was obtained.

Similar high dosage is recommended for M. & B 693, although there is evidence that lower dosage of this drug will often be successful.

Persons of all ages were amenable to chemotherapy Infancy is not now an age of unfavourable prognosis, but further experience is required for prognosis in the age group over forty

Groups I and II meningococci are equally susceptible to chemotherapy.

The oral route can be used throughout in most cases For vomiting or difficulty in swallowing, an occasional intramuscular injection of M. & B 693 soluble (sodium solution) is *convenient*

In certain cases a combination of M & B. 693 and sulphanilamide is serviceable.

The sulphanilamide (Streptocide) was kindly supplied by Messrs. Evans, Sons, Lescher and Webb through the Therapeutic Trials Committee of the Medical Research Council, and the M. & B 693 tablets and sodium solution by Messrs. May and Baker The pathological work was done at the Southern Group Laboratory, and the biochemical work at the Group Laboratory, Lewisham Hospital, L.C C

I have to thank the medical superintendents of the L C C general hospitals for transferring their cases so promptly. Without their active cooperation it would have been impossible to accumulate the material.

References at foot of opposite page

THE ELECTROSURGICAL OPERATION IN GALL-BLADDER DISEASES

RESULTS OF 13 YEARS' EXPERIENCE

By B O C Pribram, M D Berlin, L R C P E
LATE PROFESSOR OF SURGERY IN THE UNIVERSITY OF BERLIN

The excellent healing obtained through the accurate covering of the liver bed with peritoneum after a subserous cholecystectomy without any drainage led me to seek similar results in more advanced cases also, where, owing to partial necrosis, advanced inflammation, or scars, an exact subserous cholecystectomy (with a knife or with scissors) was no longer possible The idea was to destroy the inflamed mucosa and the whole of the inner layers down to the serosa from the *inside*, thus keeping the serous layer available for covering the liver bed with peritoneum

I started my experiments in 1922 At first I used a thermocautery to destroy the inner coats of the gall-bladder If the wall was thicker than usual, it was sometimes necessary to remove the superficial crust with a sharp spoon and to cauterise again until the inner layers were entirely destroyed A technical improvement was made in 1926, when, instead of cautery, we began to use electrocoagulation, which is more quickly and more easily performed

By varying the strength of the current, the form of the different secondary coagulation electrodes and the pressure exercised on the tissue, the depth of the desired destruction can easily be regulated The depth of the electrocoagulation effected is roughly in inverse proportion to the size of the electrode The method enables one to necrotise when required, only a thin layer over the serosa, but if necessary one can achieve deep coagulation down into the liver bed for necrosis and abscesses Electrocoagulation destroys the inflamed and badly infected tissues and the result is aseptic necrosis with a perfect tendency to heal

TECHNIQUE

The technical procedure employed by me as a routine in more than 1000 cases is as follows —

The abdomen is opened by a costal incision, and a self retaining retractor is inserted in the edges of the wound Stomach and colon are held aside with saline swab The excellent exposure obtained through the costal incision (Pribram 1930) enables the liver to be left in place Traction and displacement of the liver, with consequent traction on the diaphragm, are sometimes responsible for a postoperative hypostasis or a massive collapse of the lungs, pneumonia, and other complications

Attention must first be paid to the inflamed gall-bladder, which, especially when enlarged, hinders careful examination of the common duct The whole field round the bladder having been protected with saline swabs, the liquid contents of the bladder are aspirated through a two way syringe (fig 1) The bladder is washed out several times, first with saline and then with a mild antiseptic solution (Rivanol 1 in 1000) The serosa over the cystic duct is incised and the latter laid bare and cut between two silk ligatures, after one has satisfied oneself about the condition of the hepatic duct and the absence of anatomical anomalies The cystic artery is ligatured, when this can be done easily and quickly, but this is not essential It is useful and generally easy to *separate serosa flaps from the neck of the bladder* with large scissors to cover the cystic stump

Next the bladder is opened (fig 2) the stones are removed, and if possible the proximal cystic stump is excised, together with a small part of the mucosa of the bladder This procedure facilitates electrocoagulation The bladder now lies like an open book The inside is electrocoagulated (fig 3) down to the serosa As mentioned, one sometimes removes the coagulated layer with a sharp spoon In all cases, however, only the serous layers are preserved If the gall-bladder wall is very thick, the inner coats can be removed with a cutting wire loop, as in electro curettage, and then coagulated further, if necessary, with the normal button electrode The serosa flaps are folded and sewn together in exactly the same way as in a subserous cholecystectomy (fig 4)

After the liver bed has been accurately covered with peritoneum, the abdomen can be closed without drainage The tendency to heal is perfect

The following case seems to be of interest both from a clinical and technical point of view, because almost the whole technique of gall stone surgery was exercised in this one case, and the tendency to heal after mucoclasis can be demonstrated The patient was operated on in 1929, before the ether method (*Lancet*, 1930, 1, 1311) had been introduced

A woman, aged 41, operation under rectal anæsthesia The gall bladder was exposed through a costal *incision and was found to be full of stones* The cystic duct was as thick as a finger and likewise filled with stones Its aspirated liquid contents consisted of turbid mucus and pus Subserous cholecystectomy was impossible The bladder was opened and all stones were removed The mucosa was coagulated down to the serosa, as was also an abscess in the liver bed The cystic duct was incised down to the common duct, and the stones in it were removed Palpation showed that the right and left hepatic ducts were full of stones After a difficult removal of these stones through an incision in the hepatic duct, there was an ample flow of dark turbid bile

On probing the common duct downwards towards the duodenum, the ampulla of Vater was found to be entirely closed, being tightly packed with stones which could not be driven either upwards or into the duodenum A transduodenal choledochotomy was therefore performed—i e, the duodenum was opened through an oblique incision and the papilla pushed forwards, probed, and incised on the right side All the stones in the papilla were then removed and the common duct and papilla rendered accessible to a probe of small calibre The papilla, however appeared to be scarred and shrunken, and so narrow that it seemed inadvisable to use it as the only passage for the outflow of bile, so the duodenum was partly closed, the opening in the hepatic duct sutured, and a choledochoduodenostomy performed with the incision already made in the cystic duct

All sutures were carefully covered partly with the flaps of the duodenal ligament and partly with the flaps remaining from mucoclasis the whole being accurately covered with peritoneum The abdominal

---

DR STANLEY BANKS REFERENCES

Allott E N (1938) *Lancet* 2 13
Antopol W and Robinson H (1939) *Proc Soc exp Biol*, N Y 40 428
Backhouse T C (1939) *Lancet* Sept. 30 p 736
Banks H S (1938) *Ibid* 2 7
Bensley E H and Ross J B (1937) *Canad med Ass J* 37, 62
Branham S E and Rosenthal S M (1937) *Publ Hlth Rep*, Wash 52 685
Brown T M (1937) *Bull Johns Hopk Hosp* 61 272
Bryant J and Fairman H D (1939) *Lancet* 1 923
Campbell D and Morgan E N (1939) *Ibid* July 15 p 123
Chesley L C (1938) *J clin Invest* 17 445
De S P and Basu V P (1938) *Brit med J* 2, 561
Fleming A (1938) *Lancet* 2 74
Hartmann A F Perley A M and Barnett H L (1938) *J clin Invest* 17 699
Hobson F G, and MacQuaide D H G (1938) *Lancet* 2 1213
Lowenthal H (1939) *Ibid*, 1, 197
Marshall E K and Walzl E M (1937) *Bull Johns Hopk Hosp* 61 140
Ottenberg R and Fox C L Jun (1938) *Proc Soc exp Biol* N Y 38 479
Paton J P F, and Eaton, J C (1937) *Lancet* 1 1159
Somers R B U (1939) *Ibid* 1 921
Southworth H Cooke, C (1939) *J Amer med Ass* 112 1820
Wendel W B (1939) *J clin Invest* 18 179
Whitby L (1939) *Lancet* 2 1095

cavity was completely closed. The postoperative course was perfect, flatus passing after twenty-four hours. The patient left her bed on the eighth day. On the tenth day I proceeded to remove her piles

Where there is an abscess or focus of infection in the liver I apply electrocoagulation deep into the liver bed and into the substance of the liver In my experience electrocoagulation has proved the best method for dealing with abscesses of the liver in general When the whole of the gall-bladder is in a state of phlegmonous inflammation I cut the whole of it away at the level of the liver with a wire loop and then thoroughly coagulate the liver bed as deeply as need be In these cases, especially those infected with *Bacterium coli*, I have sometimes left a rubber drain for forty-eight hours In others I have covered the liver bed with omentum, which, owing to its vitality, immunity, and property of immediate adhesion, is the most suitable tissue for such purposes when the serosa of the bladder is destroyed

Electrocoagulation has proved of special value in cases of perforation of the gall-bladder into the colon The healing tendency in these often seriously septic cases is generally very poor, evidently owing to the necrosis caused by *Bact coli* As little as possible should be done on this badly infected field An attempt to perform a routine operation often leads to dangerous propagation of the infection and increased absorption of toxic products, causing serious damage to the peripheral circulation The bladder is often filled with fæcal masses Cholecystectomy and suturing of the opening in the colon after proper resection has a high death-rate and entails many complications, such as postoperative colic fistulæ.

A woman of 45, who had suffered for years from gall-stone colic, had a very severe attack a fortnight before she was sent to the clinic in 1929 The agonising pain ceased, but rigors and an evening temperature of about 102° F persisted.

On admission she was a tall woman with flushed cheeks and slightly yellow conjunctivæ. Leucocytosis 12,000 In the right upper abdomen there was a painful lump as big as a fist The diagnosis was empyema of the bladder or abscess after perforation. In view of the sepsis indicated by the fever, conservative treatment could not be continued.

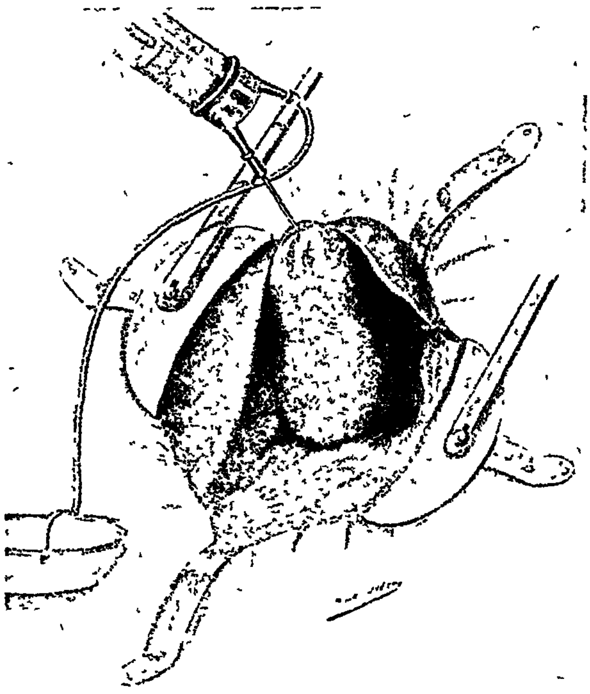


FIG. 1—Aspiration of liquid contents of the gall-bladder with a two-way syringe

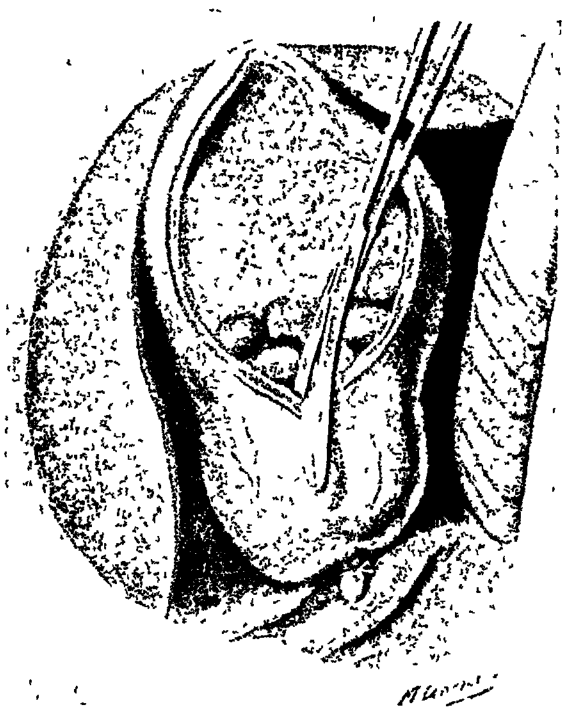


FIG 2—Opening of gall-bladder after ligature of cystic duct.

The operation was performed under general anæsthesia Costal incision. The tumour was formed by the enlarged and freshly inflamed gall-bladder, the colon, the duodenum, and the liver, all being covered with inflamed omentum. The slightest attempt to separate the organs was immediately followed by diffuse bleeding. The fibrous tissue forming the adhesion of the bladder with the colon was very dense and suggested perforation By invaginating the finger into the colon, the site of perforation could be unmistakably felt Separation of the colon from the bladder would have caused a large opening in the colon and was therefore abandoned There could only be a question of either cholecystostomy, as an operation of emergency, or radical mucoclasis I decided on the latter.

Through a large needle yellow purulent masses with an offensive smell were aspirated The gall-bladder was opened as far away as possible from the site of perforation, and fæcal semifluid masses, pus, and stones were removed with a spoon. Stones were found down to the cystic duct. There was some difficulty in removing the impacted stone in the neck of the gall-bladder. The liver bed was necrotic and full of abscesses A curved electrocoagulation electrode was introduced, and the whole of the inside of the gall-bladder was coagulated, all abscesses being carefully destroyed The neck of the gall bladder and the opening of the cystic duct were also carefully coagulated with a smaller electrode The cavity of the bladder was filled with a piece of omentum, a rubber drain introduced near but outside the bladder and the abdominal cavity otherwise closed

Apart from tachycardia, due to the thyrotoxic state of the patient, the recovery was fairly satisfactory. The secretion from the drain was very small The drain was gradually shortened and after a week's time removed. The patient was followed up for many years At first she sometimes had recurrent attacks with colic. I am not sure whether these attacks were due to stones passing through the common duct, which could not be examined at operation After a year these attacks ceased and the patient was perfectly well, except for a certain intolerance regarding fatty food

I do not think that any other method would have proved so useful in this serious case as mucoclasis Where stones in the common duct are the outstanding findings and the gall bladder is inflamed and shrunken, I sometimes coagulate the whole gall bladder with the liver bed without bothering about a serous covering especially when it is necessary for the common duct to be drained

ADVANTAGES AND RESULTS

To summarise the advantages of the electrosurgical operation (1) it is especially valuable in badly infected cases, (2) the healing tendency in these cases is as perfect as in simple cases, (3) closure of the abdominal wall without drainage is almost always possible where the process is limited to the gall bladder and (4) electrocoagulation is the best method of dealing with abscesses of the liver in general

With electrosurgical methods there is no difference in the results whether operation is undertaken in the acute or in the chronic stage Even in very acute stages of serious inflammation there is no need to perform cholecystostomy as an emergency operation Radical mucoclasis is performed at the same stage with an even smaller risk and lasting results Many surgeons have already adopted the method and reported their results, such as Mirizzi (Cordova Argentine) Jakobovici (Bucharest) Pop (Cluj), Whitaker and Thorek (Chicago)

Thorek, who adopted my method in 1933, has become an ardent advocate of the radical procedure even in simple cases and suggested replacing the gall bladder serosa by a graft of falciform ligament (*Lancet*, 1938 1, 15) This does not seem to me to be a useful modification When a graft is required to cover the liver bed omentum seems to us preferable to falciform ligament I also think that to apply electrocoagulation in all cases is too rigid a scheme In the case of a functioning bladder I have become even more conservative performing cholecystocholedochostomy in suitable cases (*Lancet* 1939)

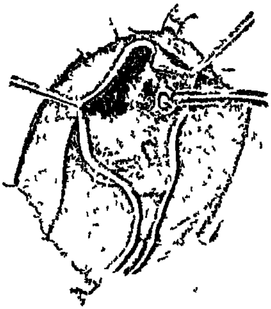


FIG 3 Electrocoagulation of the inner layers of the gall bladder

In 1928 (*Zbl Chir*) I was able to furnish statistics of 200 cases with no immediate operative mortality

Four of the patients died within six months One was a pregnant woman of 41 who developed acute atrophy of the liver and died three weeks after operation Another a woman of 37, had a liver abscess round an intrahepatic stone ; a second operation was performed two months after the first but the abscess was not found A third patient died ten weeks after operation from suppurative parotitis complicating dental sepsis and a fourth died from carcinoma of the bladder, showed a case mortality of 2 0 per cent Excluding the cancer cases the case mortality was 2 2 per cent I am now analysing more than 1000 cases in which the electrosurgical operation was performed with a mortality under 3 per cent

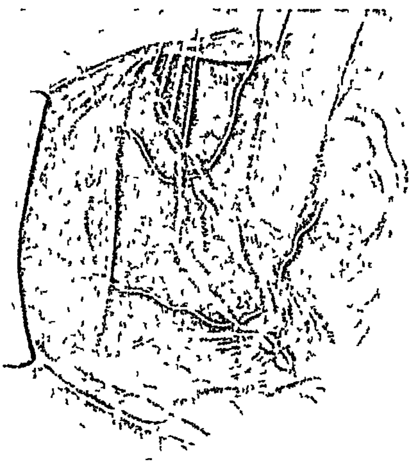


FIG 4—Suture of serosa flaps after electrocoagulation of the gall bladder

The next statistics available (*Zbl Chir* 1929) with 310 serious cases, including one of jaundice due to cancer of the pancreas and one of advanced carcinoma

Gall bladder stasis		6
Cholecystitis		31
Stones without occlusion		55
Occlusion of cystic duct (stasis and hydrops)		33
Empyema of gall bladder		12
Gangrenous gall bladder with empyema		14
Shrunken gall bladder		13
Acute perforation of gall bladder		3
Perforation with peritonitis		2
Stone in gall bladder and common duct	jaundice	20
Cholæmia due to impacted stones		5
Primary choledochoduodenostomy		2
Secondary choledochoduodenostomy		3
Carcinoma of the gall bladder		1
Total		200

SUMMARY

Electrosurgical operation for gall bladder diseases, in the thirteen years in which I have used it for over a thousand cases, has proved a definite advance, especially as regards badly infected cases It is the best means of dealing with abscesses in the liver bed and within the liver There is no need to use cholecystostomy in case of emergency or for empyema radical mucoclasis can be performed at the same time with far better results

The electrosurgical operation and the other method combined with cholangiography are our mainstays in dealing with gall stones and hepatobiliary diseases

REFERENCES

Bloch G M (1938) Clinical Electrosurgery, London, p 872
Jakobovici J (1937) [illegible]
Mirizzi P L (1933) [illegible]
— (1934) [illegible] 4
— (1937) Pr méd 45 [illegible]
— (1939) Lancet 2 [illegible]
Pop A (1931) Zbl Chir N 31

RÔLE OF SYMPATHETIC NERVOUS SYSTEM IN SEGMENTAL PAIN

By Walter Gordon Campbell, F.R C S
ASSISTANT SURGEON TO THE DUNDEE ROYAL INFIRMARY

(*From the Department of Surgery, St Andrews University*)

During the past ten years operations on the sympathetic nervous system have been extensively employed in treating so-called "vascular" or "sympathetic" pain Little use, however, has been made of the observation, made by Leriche, that the sympathetic nerves supplying a part have some control over the ordinary pain of segmental type.

While visiting Leriche's clinic at Strasbourg, I was greatly impressed by the speed, facility, and accuracy of their method of injecting the lumbar sympathetic *chain Since my return I have found many cases* which have benefited greatly from this simple *procedure, and in this paper I wish to describe the* technique employed by Fontaine at that clinic and to describe several cases of its application to the treatment of segmental pain

The lumbar sympathetic cord consists of four ganglia and uniting cord, which lie on either side of the anterolateral aspect of the vertebræ at the anterior border of the psoas magnus. The right is overlapped by the inferior vena cava, and the left is close to the left margin of the abdominal aorta. The renal arteries cross each cord at the level of the lower border of the first lumbar vertebra.

To block efferent or afferent impulses of the sympathetic system of the lower limb, it is only necessary to inject procaine anywhere in the course of this cord ; but, in practice, two types of injection are used : the high injection just below the last rib and above the renal vessels, and the low below the renal vessels. In the series of cases reported in this paper the high injection has been used ; for in injecting the upper lumbar region, there is no possibility of injecting the lumbosacral cord

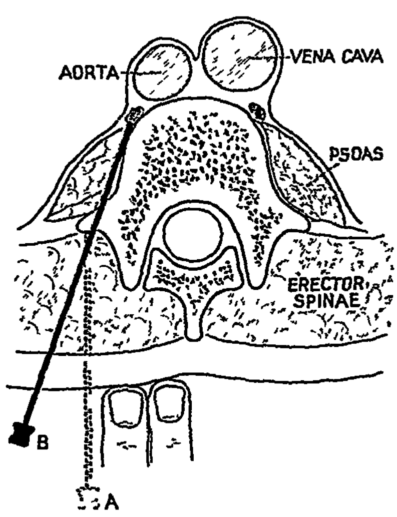


Diagram showing mode of injection of the lumbar sympathetic ganglia The Pitkin needle is first (A) inserted vertical to the skin until it strikes the transverse process, and is then (B) withdrawn slightly and slid past the process until it strikes the side of the vertebra, which is the

TECHNIQUE

The ordinary Pitkin 3½ in. stainless-steel needle, adapted for a Record syringe, serves admirably for the purpose It is inserted at right angles to the skin, two finger-breadths from the spine, and just below the last rib. After the needle has penetrated for about 1 in., bone is struck ; this is the transverse process of the vertebra The needle is withdrawn slightly and pa upwards or downwards and then made to over or under this bone It is then advanced *another inch or so, when bone should agai* struck This bone is the side of the lumbar vert and is the site for injection (see figure) The ne is withdrawn slightly to free it from verte periosteum, the stylet is removed, and a 20 c Record syringe, containing 15 c.cm. of a 1 per solution of procaine is attached. Aspiration is carried out to make certain that the needle is n the spinal theca, in the aorta (left), or in the cava (right), when cerebrospinal fluid or blood w be withdrawn. The 15 c cm of procaine is slowly injected. If the needle has been suit placed, the injection is easy, for the retroperito *tissues are easily displaced by the injected f* The injection is free from pain, but the patient o remarks, "Oh ! My leg feels warm," as the injec is being carried out.

In a series of forty such injections few difficu have been *encountered. In one case* we faile inject the ganglia The patient was crippled deformed by rheumatism, and the skeletal anat was far from normal In another case aspira before injection of the left side showed blood reinsertion cerebrospinal fluid was withdrawn third insertion found the spot. Two complicat should be mentioned. In a case of chronic traum *œdema of the ankle* we *produced temporary p* paralysis and pain in the front of the thigh (lumbar nerve) This cleared in six weeks, bnt, s the œdema also went immediately, the patient grateful. I carried out the procedure, in a pat with severe auricular fibrillation and embolism of leg, before attempted embolectomy. She develop cerebral embolus during the operation, but this, I sure, was a complication of the fibrillation rather t of the injection

ILLUSTRATIVE CASE-RECORDS

When I first used this method of therapy, I di on the assumption *that abolition of vasoconstric* was my aim. Therefore I employed it in cases vascular disease, most commonly senile arteritis, diagnostic or therapeutic agent.

Case 1.—A man, aged 70, who had suffered for past ten years from diabetes mellitus, consulted on July 17, 1938, because of typical claudications. also had a painful cellulitis of the dorsum of the foot The part was angry-looking, and he would have it touched.

The injection relieved both the pain of claudicat and the pain of the foot He felt the foot and warmer than he had "for years." He recei weekly injection for a month The cellulitis beca *painless and healed rapidly, and he said he could* w much farther and got no pain in the legs

It seemed to me that in this case sympathe block had relieved not only the sympathetic pain, a thought it might, but also the pain of the cellul which I took to be ordinary segmental pain. Cu ously enough, I had *no sooner* given this man his fi injection and observed his relief from pain, when I w called to the ward to see Case 2.

Case 2.—A man, aged 33, on whom I had on t previous day performed arthrodesis of *all the* tar metatarsal joints for persistent pain following cr fractures of these joints. sustained in January, 193 When I saw him in the ward, he lay, a big dour Sco man, writhing in agony. He said his *foot* w "terrible." Certainly the toes projecting beyo the plaster were rather swollen, but not more so than usual, and the circulation was not impaired I injected his lumbar sympathetic, and his pain was immediately and completely relieved and did not recur

During the past three years we have used Leriche's local infiltration of procaine as the routine treatment for ankle sprains and first degree torsion fractures of the ankle (Campbell 1938), agreeing with and confirming his conception that in injuries a vicious circle is established at the site of the injury, incorporating the usual excitor, connector, and effector stimuli, the effector stimulus being transmitted through the sympathetic system Lumbar sympathetic block could be used to confirm or refute this belief, so I used it in the following case

CASE 3—A woman, aged 40, consulted me on July 26, 1938, because of severe sprain of the left ankle On the previous day she had been thrown from the pillion of a motor-cycle She had twisted her foot in falling, and the side-car had also crushed her foot The doctor who attended her advised her to return home, for he had no doubt that the injury would prevent her from enjoying a holiday

When I saw her, the foot was badly bruised and swollen It was extremely painful, and she could not put her foot to the ground Radiography showed no fracture She was suffering from severe sprains of the external lateral ligament of the ankle and severe contusion of the dorsum of the foot I treated her by injecting the left lumbar sympathetic Immediately after the injection she said, "What a difference! I have no pain now" She got off the operating-table without help and walked out to her friends, who were amazed She resumed her holiday When I next saw her, she told me that she suffered no pain after the injection She walked about without hindrance and three days later walked five miles over a heather moor

CASE 4—A woman, aged 32, with a severe sprain of the external lateral ligament of the right ankle After I had given her the injection, she walked home without pain, although before the injection she had been carried, for she could not bear any weight on her foot The pain did not recur She suffered no after pain

CASE 5—A man, aged 38, who consulted me on Aug 1, 1938, had a first-degree torsion fracture of the right ankle (a spiral fracture of the lower end of the fibula, with intact internal lateral ligament) He could not walk, but immediately after injection of the lumbar sympathetic he found the pain completely relieved He got off the table himself, walked, marked time, and put his ankle and subastragaloid joints through their normal range of movement He only complained of a tight feeling in the ankle

He remained free from pain for five hours, when the ankle again became painful and he had to lie down Such fractures I usually treat by procaine infiltration without support, so this was done on the following day His pain was relieved for only two hours The next day local infiltration was again carried out Again the pain returned in a few hours This was most unusual and we finally reverted to plaster fixation

These three cases were of special interest for it was found that although lumbar injection freed the patients from pain and abolished all spasm and fixation at the site of injury deep tenderness persisted There was no anesthesia and light touch and pin pricks were normally appreciated

After these successful cases, I began to use the method as a routine in orthopædic operations on the lower limb where pain is often very severe after operation

CASE 6—A man aged 38 had an ununited fracture of the right tibia, a gap of 1 in having resulted from a severe compound injury sustained a year before On Aug 23, 1938, I carried out the normal grafting procedure, an inlay graft some 6 in long being cut from the left tibia and fixed in a mortice in the right tibia At the conclusion of the operation I injected the right lumbar sympathetics with procaine

The next day he said that his right leg was perfectly comfortable, but he complained of agonising pain in the left leg The right toes were not swollen and had a normal pink colour The left toes were swollen and blue The next day pain was still absent from his right leg, but he still complained of pain in the left leg "If my left leg were as good as my right," he said, "I should be all right" We then injected the left sympathetic ganglia, and his pain was immediately abolished and did not return

This case gave us a perfect scientific control observation, for he did not know anything about the injection of the right side, which was carried out under anæsthesia The two legs had undergone equally severe operations, yet the difference in the pain after operation was most remarkable

CASE 7—A woman, aged 25, had severe pain and swelling of the left foot on Aug 30, 1938, after I had carried out Naughton Dunn's triple arthrodesis operation two days before She would not allow me to move the plastered foot, even the toes, which were only slightly swollen, were extremely tender Her left lumbar sympathetic was injected Her pain immediately disappeared, and she allowed me to lift the foot in the air and drop it heavily on the bed Even shaking the plastered foot caused no pain The pain did not recur

CASE 8—A girl, aged 16, on whom I performed this triple arthrodesis on March 7, 1939 Her left foot had been arthrodesed in May, 1938, and she suffered considerable pain This time, during the operation, I injected the lumbar sympathetics of the right foot She had no pain in the right foot for thirty-six hours after the operation Pain then developed, but she said that it was not nearly so sore as after the previous operation

DISCUSSION

I believe that, in sprains, persistent pain is produced in response to afferent segmental impulses, which produce an efferent sympathetic response, causing in the injured region vascular or physiochemical changes which in turn act as a stimulus of continued pain This is the basis of Leriche's (1928) work, and my cases 3, 4 and 5 confirm his belief that the level of the reflex is at the spinal cord Recently Policard (1936) has stated his belief that the mechanism is a local axon reflex phenomenon The fact that lumbar block inhibits the sprain reflex does not confirm this belief

The possibility that the level of the reflex may be cerebral is suggested by a case in which I performed triple arthrodesis in January, 1939 for a girl aged 15 because of club foot, due to Friedreich's ataxia with which she and her brother are affected She had no pain in the foot after the operation and did not require the lumbar injection Such cases happen seldom in my practice and I would be grateful for observations of the degree of pain suffered by such patients when operated on by others

That lower axon reflexes can take on the function of the spinal reflex is certain On Sept 20 1938 I carried out bilateral triple arthrodesis on a woman aged 29 who on July 18 had had lumbar sympathectomy performed by me She suffered severe pain in the feet after the operation I injected the lumbar region but as I expected without relief of pain

In the surgery of sympathetic or vascular pain we have assumed that relief of pain is due to abolition of vascular spasm and our tests before operations of this sort mostly depend on measurement of the elevation of skin temperature following temporary abolition of sympathetic vasoconstriction by fever, spinal anæsthesia, or direct infiltration of the appropriate ganglia Without rise of temperature we do not operate I question the truth of this assumption In cases of injury the local temperature is always raised above the corresponding part on the other limb After lumbar block the temperature falls Again, I have several times observed, in senile arteritis with claudications, that, even when the skin temperature does not rise after lumbar block, the patient can often walk much farther before the pain is felt. I agree that, for clinical purposes, the test is probably sound, but I do not agree that pain therefore must always be attributed to tissue ischæmia

It is my belief that the sympathetic nervous system produces in the injured region, in response to injury, some chemical stimulus which "tops up" the initial stimulus and prolongs the sensation of pain, which, unlike all other forms of sensation, so long outlives the initial stimulus that produces it.

SUMMARY

(1) The technique of injection of the lumbar sympathetic chain is described

(2) This simple procedure has proved of great value in the treatment of peripheral vascular disease.

(3) It is also useful for the relief of segmental pain in the lower limbs and can, in fact, be used instead of local infiltration in the treatment of sprains and fractures of the ankle, and in conjunction with orthopædic operations

(4) It may prove of value in the first-aid treatment of lower limb injuries

REFERENCES

Campbell, W G (1938) *Lancet*, **2**, 872
Leriche, R (1928) *Gaz Hôp Paris*, **100**, 63
Policard, A (1936) Physiologie générale des articulations, Paris.

POTASSIUM IODIDE AND IPECACUANHA AS EXPECTORANTS

By Stanley Alstead, M D. Lpool, M R C P.

ROBERT POLLOK LECTURER IN MATERIA MEDICA AND THERAPEUTICS IN THE UNIVERSITY OF GLASGOW, ASSISTANT VISITING PHYSICIAN TO THE STOBHILL HOSPITAL, GLASGOW

The efficiency of expectorants is not easily assessed, for they do not affect the healthy subject, given in large doses they cause vomiting, but subemetic doses do not seem to act on normal bronchial mucosa They are almost invariably used in acute bronchitis, but this disease tends to spontaneous recovery. Chronic bronchitis, however, is more suitable for the evaluation of expectorants, the respiratory tract is abnormal, and there is no tendency to quick spontaneous recovery

METHOD OF INVESTIGATION

In the assessment of potassium iodide and of ipecacuanha as expectorants, observations were made on 17 consecutive cases of chronic bronchitis treated in one ward at Stobhill Hospital in the early months of 1939. All the patients were adult males who had suffered from chronic bronchitis for many years The physical signs in the chest were typical of chronic bronchitis, and more or less emphysema was also present The diagnosis was confirmed by radiography of the lungs

The patient was instructed to collect his sputum in a graduated glass tube. The amount was measured and recorded every twenty-four hours. The naked-eye appearance of the secretion was noted at the outset and throughout the investigation, and the chest was examined from time to time. As a control period, three or four days were allowed to elapse without drug treatment, and then usually for a similar period a placebo was given, consisting of tincture of coccus in water; the average duration of the whole control period in the series was nine days. Thereafter, for a similar period (average seven days), potassium iodide gr. 5-10 was added to each dose of the coccus solution. For the last stage of the investigation (average nine days) the patient received the same mixture with the addition of 40 minims of tincture of ipecacuanha in each dose.

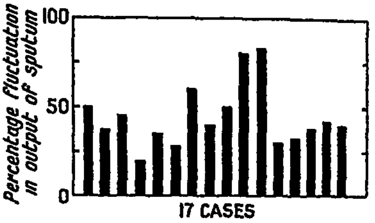


Fig 1—Fluctuations in output of sputum during control period By "percentage fluctuation" is meant the proportion between the range of output and the maximal output—e g., if the maximal daily output is 90 c cm and the minimal 60 c cm, the range is 30 c cm and the percentage fluctuation 33⅓ per cent.

RESULTS

Considerable fluctuations in the output of sputum during the control period (fig. 1) discounted to a large extent the transient changes in the output of sputum following the exhibition of expectorants The value of the control period and of the preliminary administration of a placebo is illustrated by fig 2 During the first week, when the patient received no drugs, the percentage fluctuation reached 60. The output of sputum was doubled immediately after administration of the placebo (coccus) and trebled on the fourth day of this treatment Thereafter the amount of secretion remained at a comparatively low level despite the administration of potassium iodide and ipecacuanha On the other hand, fig 3 shows in another case an apparent correlation between increased expectoration and the use of potassium iodide, but the addition of ipecacuanha did not check the downward trend in the output of sputum after the maximum of 80 c cm had been attained A better example of a downward trend in the output of sputum during the administration of each of these expectorants is seen in another case (fig 4)

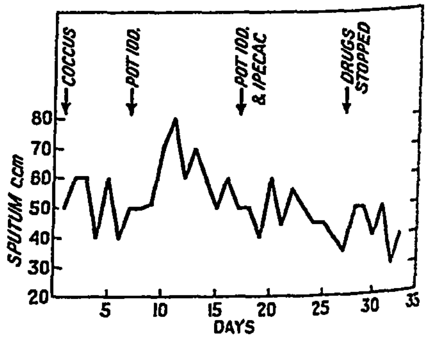


Fig 3—Output of sputum for periods as in fig. 2 Note increase of sputum during treatment with potassium iodide

Perhaps the most satisfactory method of assessing the effects of the drugs is to compare the average daily output of sputum for the different phases of the investigation The averages have been determined, and the percentage variations from the average output in the control period are set out diagrammatically in fig 5, which shows that during the administration of potassium iodide the output of sputum increased in 7 cases, diminished in 8, and did not change in 2 The group considered as a whole shows a slight tendency towards decrease of expectoration

The results of the third phase of the investigation are represented in fig 6, which shows that, when ipecacuanha was given besides potassium iodide, the output of sputum increased (less than 10 per cent) in only 2 cases, was unchanged in 1, and was reduced in the remaining 14 in 11 of which the reduction was substantial (20 per cent to 60 per cent) The slight tendency to reduction in the daily output of sputum during the administration of potassium iodide (fig 5) became much more pronounced when the patients were receiving ipecacuanha in addition to potassium iodide (fig 6)

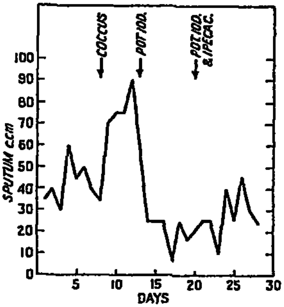


FIG 2—Output of sputum of one patient during treatment (1) without drugs (2) with placebo (coccus), (3) with potassium iodide, and (4) with potassium iodide and ipecacuanha

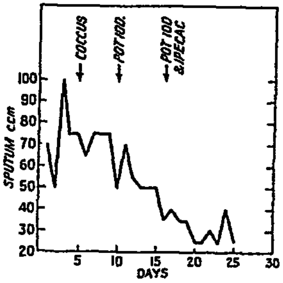


FIG 4—Output of sputum, showing decrease during administration of potassium iodide and of a mixture of potassium iodide and ipecacuanha

The sputum of all the patients was mucopurulent during the control period, it was excessively mucoid in 5 and more purulent than usual in 4 After the administration of potassium iodide for ten days and ipecacuanha for five days the mucoid sputum of one patient became even more watery No naked eye change was visible in the sputum of the other patients

Periodic examination of the lungs showed a gradual reduction in the number of moist sounds as the output of sputum diminished, rhonchi often persisted when the sputum was scanty In one patient bronchial asthma, occurring mainly at night, became less troublesome a few days after the administration of potassium iodide, and he said that "the phlegm was broken more easily", during this time the trend of sputum output was downwards Wheeziness due to bronchiolar spasm suddenly ceased in another patient, who was receiving only tincture of coccus in water Mild iodism was seen in two patients, but there was no simultaneous increase in the expectoration, although coryza developed No consistent relationship was observed between output of sputum and variations in the temperature of the ward, partly because nearly all the patients were kept in bed while under treatment

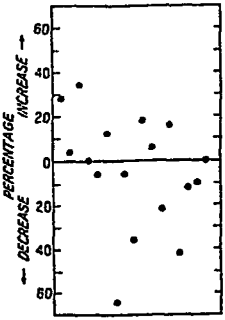


FIG 5—Percentage variations from average output of sputum in control period showing a slight tendency towards decrease of expectoration during the administration of potassium iodide

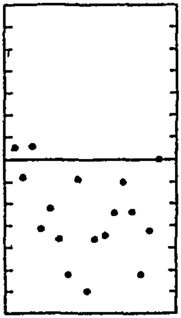


FIG 6—Percentage variations from average output of sputum in control period, showing pronounced tendency to decrease of expectoration during the administration of a mixture of potassium iodide and ipecacuanha

DISCUSSION

The investigation was carried out under satisfactory conditions, the period of observation was sufficiently long and the doses of the drugs were adequate The results do not support the view commonly held that ipecacuanha and potassium iodide produce a copious and more fluid sputum If alterations of 10 per cent and under are ignored only 4 out of 17 patients produced more sputum when treated with potassium iodide On a mixture of ipecacuanha and potassium iodide, increased expectoration was absent in nearly all the patients It may be argued that decreased expectoration was due to diminished frequency of the cough which in turn was due to some beneficial action on the bronchial mucosa brought about by the expectorants This cannot be refuted on the data obtained in this investigation for the frequency of coughing was not noted Against this view, however, is the absence of qualitative changes in the sputa consistent with any action of the drugs on the bronchial mucosa It must also be emphasised that, although the decrease in expectoration was often substantial the output of sputum was still considerable in most of the patients at the end of the investigation In view of the clinical features the course of the disease, and especially the absence of any sudden and sustained improvement attributable to drug therapy it is most probable that expectoration gradually diminished with the increasing benefit derived from general measures including rest in bed [illegible] protection from cold and freedom from [illegible] the output of sputum was unchanged [illegible]

I am indebted to Prof Noah [illegible] in this clinical investigation [illegible] J. F. Rennie and Nurse J Maclean [illegible] co-operation Part of the expenses was defrayed by a grant from the Medical [illegible]

References at foot of next page

CLINICAL NOTES

ACUTE YELLOW ATROPHY

WITH RECOVERY AFTER TERMINATION OF PREGNANCY

By Stanley Way, M.R C.S.
TUTOR IN OBSTETRICS, UNIVERSITY OF DURHAM

A WOMAN of 34 attended regularly at the Princess Mary Maternity Hospital, Newcastle-on-Tyne, from the third month of her fourth pregnancy She had had two full-time normal deliveries and a two months' abortion; her last pregnancy had been four years ago

She remained perfectly well until she was twenty-eight weeks' pregnant; on five occasions the urine and blood-pressure were normal, and there was no hyperemesis. On the morning of March 27 she was seized with violent headache, which persisted all day; she vomited several times, and was forced to go to bed. Next morning she felt a little better, but she noticed that she was slightly yellow and she passed no urine during the day. On March 29 the headache was worse and she vomited at intervals; she passed no urine and took a "kidney pill" (methylene-blue). On the 30th the jaundice was more obvious and the headache very severe; she had flashes of light before the eyes, dimness of vision, and copious vomiting In the evening she passed a little urine which she said contained blood. She felt very ill indeed and spent the entire day in bed.

On March 31, when she came to the clinic, no urine could be obtained for examination Temperature 100° F., pulse-rate 130. She was deeply jaundiced all over the body, and looked emaciated. She could hardly stand even with assistance. Her main complaints were headache, dimness of vision, and intense thirst. There was tenderness over the liver and in the epigastrium. The tongue was dry and furred. Blood-pressure 130/90. The liver dullness was much diminished. Uterus 28 weeks in size; fœtal heart heard.

I made a diagnosis of acute yellow atrophy and admitted her to hospital Later in the afternoon I saw her again and passed a catheter. I withdrew 4 oz. of bright green urine which contained albumin, sugar, diacetic acid and blood; there was much bile and acetone but no pus; on microscopy hyaline casts, red blood-cells, epithelial debris, and crystals of leucine and tyrosine were seen. Ophthalmoscopic examination revealed a small retinal hæmorrhage in the left disk.

Upon these findings I determined to terminate the pregnancy. In two hours she was given 2 pints of glucose-saline by intravenous drip. Then (on the evening of admission) I administered a spinal anæsthetic (Percaine 1 in 1500 by the Etherington-Wilson technique) and performed an abdominal hysterotomy, delivering a living child weighing 2 lb., which died two hours later. The patient's abdominal cavity and its contents were deeply jaundiced; the uterine wall and ovaries were bright yellow, exhibiting the jaundice more markedly than any other structures. The kidneys, spleen, and pancreas were apparently normal, and the gall-bladder contained no stones; but the liver was only about a third of normal size.

Glucose-saline was given by intravenous drip for three days and 10 c cm. of calcium gluconate was given intramuscularly daily for five days. On the day after operation she passed 14 oz. of urine and on the next day 19 oz. Thereafter the urinary excretion was normal. Bile disappeared from the urine on the third day. The pulse-rate remained between 120 and 140 for the first two days and then began to fall gradually. The temperature rose to 103° F. on the night of the operation, but had fallen to 99° next day. On the second day it was normal and it did not rise again. After the first three days the jaundice began to clear up but it was very slow in doing so and there was still a faint icteric tinge when the patient was discharged nineteen days after operation The temperature and pulse were then normal, the urine clear, and the blood-pressure 120/75. The liver dullness was of the same extent as it was on admission.

On returning home the patient developed a breast abscess which was incised by her own doctor and healed rapidly. She attended my postnatal clinic on June 14 and was perfectly well. The wound was satisfactory, the blood-pressure normal and the urine clear. The liver dullness, however, was still the same as it was when I first saw her. There was no tenderness over the liver or in the epigastrium

I should like to thank Dr. W. Hall for his assistance at the operation, and Sisters Cambell and Mortimer for the care and attention which they gave to the patient during her stay in hospital.

SPONTANEOUS RUPTURE OF RIGHT RECTUS MUSCLE IN PREGNANCY

By Philip A Ashkar, M.D
(From the Department of Gynæcology and Obstetrics in the American University of Beirut, Syria)

CASES of non-traumatic rupture of the rectus muscle are rare

The patient, a woman of 30, had had five children and two abortions The first pregnancy had been complicated by antepartum eclampsia, but subsequent pregnancies and deliveries had been normal.

She had had her last period at the end of June, 1938 In the middle of November she had had an acute bronchitis with mild fever. On Dec 1, while sweeping the floor, she had a sharp stabbing abdominal pain, followed by mild dyspnœa' She was admitted to hospital and given a sedative. Pain and fever persisted, and on the 7th I was asked to examine her Her temperature was 100 5° F., the pulse-rate 98, and the respirations 36. Her heart was normal. Subcrepitant râles were heard over the bases of both lungs posteriorly. Abdominal palpation showed a five months' pregnant uterus. The fœtal heart was heard two finger-breadths below the umbilicus, rate 148 On the right side a tender mass was felt extending from the false pelvis to a little below the costal margin, with muscular rigidity. The thighs were flexed, and the left side of the abdomen was more or less soft. On bimanual examination nothing abnormal was found in the pelvis.

Laboratory investigations—Red cells, 3,790,000; white cells 13,200 (polymorphs 84 per cent., large mononuclears 15 per cent., small mononuclears 1 per cent.) Bleeding-time, 2 min Coagulation-time, 6 min. Serum-calcium 9 75 mg per 100 c.cm. Urine albumin, sugar, casts, and red blood-cells absent; bile pigments and bile salts present.

Diagnosis.—Ovarian cyst with a twisted pedicle This diagnosis was based on the sudden acute abdominal pain, the presence of a mass high up in the abdomen, the tenderness and muscular rigidity, the fever, and the leucocytosis

Exploratory laparotomy.—Dec. 8. Spinal anæsthesia The right rectus muscle was œdematous and

---

DR ALSTEAD: BIBLIOGRAPHY

Gordonoff, J. (1935) *Ann Med* 38, 249.
Gordonoff, T. (1938a) *Ergebn. Physiol* 40, 53
— (1938b) *Wien klin. Wschr* 51, 289.
— and Scheinfinkl, N. (1937) *Klin. Wschr* 16, 167.
Gunn, J. A. (1927) *Brit. med J* 2, 972
Misgeld, J. F. (1934) *Med. Welt*, 8, 263.
Rosenthaler, L., and Gordonoff, T (1937) *Schweiz med Wschr.* 67, 450.

friable A large blood-clot extending above and a little below the level of the umbilicus was removed from within the rectus sheath The muscle was found to be torn at the level of the umbilicus The tear was transverse, ragged, and irregular, and involved most of the breadth and thickness of the muscle The blood below the level of the umbilicus was lying next to the parietal peritoneum The peritoneal cavity was opened, and the abdominal organs were found to be normal The peritoneum was closed After a piece of the muscle had been taken for microscopy, the torn ends of the muscle was loosely approximated with a few mattress sutures, and the abdominal wound was closed without drainage

Pathological report —Hæmorrhage into muscle-fibres No signs of degeneration

Subsequent progress —The woman made an uneventful recovery and was discharged three and a half weeks after the operation The cough has subsided, and there was no abdominal pain The right hypochondrium felt hard The patient was advised to wear an obstetrical belt On April 27, 1939, she had a spontaneous normal delivery

This is the only case of non traumatic rupture of the rectus muscle seen at the American University Hospital of Beirut in more than thirty years The clinical course is analogous to that of the cases reviewed by Cullen [1] Our patient was pregnant and had had an infection of the upper respiratory tract The rupture of the muscle took place during muscular exertion, and the resultant hæmorrhage irritated the parietal peritoneum, producing symptoms that simulated peritonitis The muscular rigidity and the flexion of the thighs suggested an intra abdominal lesion Unless the possibility of rupture of the rectus muscle is borne in mind, a wrong diagnosis of an acute inflammatory intraperitoneal tumour will inevitably be made The case was not diagnosed until the lesion was made manifest by laparotomy

---

[1] Cullen, T, *Bull Johns Hopk Hosp* 1937, 61, 317

MEDICAL SOCIETIES

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE

At a meeting of this society on Oct 19, Sir Rickard Christophers, F R S, in his presidential address on

Malaria in War

said that when malaria occurred as a concomitant of war it had some special features which justified to some extent the term, “war malaria” This term included more than malaria in the fighting forces Infection introduced by returning soldiery might give rise to outbreaks of malaria among the civil population of the home countries In war the disease might even reappear in countries from which it had long since practically disappeared An outstanding example of this was the Emden district in northern Germany after the war of 1914–18 Since 1890 malaria cases in this area had been only sporadic, but enforced neglect of canals and drainage systems added to other changes due to the war had led to the district becoming seriously malarious Severe epidemics also occurred in Russia and some other European countries after the war Even control of malaria in the fighting forces was a much larger subject than might at first sight be supposed It involved, for instance, the prevention and treatment of malaria among troops in peace time If troops from garrisons and cantonments in malarious countries were heavily infected with malaria they were not only liable to be useless if sent on a campaign, but they were even a danger since they were liable to disseminate infection among healthy troops in the theatre of war Control of malaria among troops in peace-time was therefore very definitely related to its control in war and the experience gained in so doing is a most valuable asset in war An important aspect of malaria in war was the provision of immense quantities of quinine and other drugs required not only for prophylaxis in the troops, but also for the treatment There was also the question of stains and equipment for diagnosis, of Paris green and the means of distributing this on an unprecedented scale, of personnel trained in diagnostic and field malaria work and many other considerations.

Among the theatres of war in 1914–18 the most malarious were Taranto, Macedonia, Mesopotamia, East Africa and Palestine At the base camp at Taranto troops on their way to Egypt and elsewhere became infected with malaria Attempts to obtain huts suitable for mosquito proofing were unsuccessful and the operations as actually carried out were mainly antilarval Malaria in the Macedonia area was one of the medical surprises of the war In 1916 alone there were some 30,000 cases and roughly a quarter of the whole force was infected as shown by random blood-examinations. The first step in prevention was the formation of a malaria inquiry laboratory to ascertain the facts and to serve as a guide to action Antilarval measures on a large scale were instituted and drug prophylaxis also carried out The prophylactic dose of quinine was in 1916 usually gr 5–6 daily—doses of gr 10 daily, gr 10 twice weekly, gr 20 and even gr 30 daily were tried, but without giving any encouragement The consensus of opinion was that prophylactic administration of quinine had little effect The use of mosquito nets as protection was beset with difficulties but did more than anything else to control infection Mesopotamia before 1914 had been a terra incognita as regards malaria The knowledge gained early on in the campaign about the distribution of malaria, the nature of the carrier species and so on was very helpful The large tracts of swamp in the Tigris and Euphrates plain were found to be practically non malarious and troops here required little attention The chief problem was control in the large base camp at Basra This was situated in irrigated palm grove land Antilarval measures were necessary not only because of the nature of the country, but to minimise the effect of large-scale excavations for harbour works, bunds, roads and railways Where antilarval measures were thorough, the incidence was definitely reduced

In 1916–17 all the troops at the base were supposed to be receiving prophylactic quinine gr 5 daily This form of prophylaxis again proved disappointing and the only thing that could be said for it was that the incidence of malaria might have been heavier without it One fact brought out was that admissions to hospital were but a small part of the actual malaria. Some military units were more infected than others, those specially affected were generally found to have had a history of having been previously in East Africa or stationed on the Persian Gulf At one time many units coming from India were more heavily infected than those which had been some time in Mesopotamia

The first step in dealing with malaria in such circumstances was clearly the institution of the malaria inquiry laboratory In the last war these were, in to speak, an afterthought and more or less due to chance individual effort If they were recognised as a vital requirement in the medical organisation, they should in future be planned beforehand Experience showed that, whatever other measures had to be adopted, some form of antilarval operations would be needed. Probably Paris greening on a large scale would be best, but the details of large-scale operations should not be left to be worked out on the spot, but should be arranged beforehand

Experience showed that quinine parades by units were not enough. Quinine prophylaxis could not be relied upon to control malaria in an army in the field. As ordinarily carried out it was of doubtful value. *If it was done at all, it must be done properly.* For this propaganda among officers and men and much thought and preparation beforehand was necessary. If mosquito-proofed huts were considered to be the most desirable measure, huts of suitable pattern should be designed beforehand The mosquito-net is the method of prevention effective beyond all others in the hand of the intelligent and malaria-wise individual The difficulty of using this method for troops was great, but it has not yet had a fair deal. Merely to issue nets, leaving it to someone in the field to devise means of using them and to get them used, is not enough The proper type of net, the means of supporting it and the method of using it must be taught to officers and men, just as they are taught the correct use of a gas-mask. In a malarious country, each army hospital must have the necessary equipment for diagnosis and at least one expert technician trained in the detection of parasites

DISCUSSION

Dr. C M. WENYON said that in a place like Gallipoli troops could not carry much equipment with them, but it should be possible to provide some form of portable mosquito-net Dr Wenyon believed that quinine prophylaxis did control infection. Everybody got infected but while they were taking quinine they did not often go sick. Atebrin might be used for therapy if quinine had been used as a prophylactic By the proper use of mosquito-nets at least 99 per cent of bites were warded off

Major-General H MARRIAN PERRY outlined the organisation for laboratory diagnosis of malaria in the Army. At the base there would be fully equipped laboratories staffed with trained pathologists and technicians Further forward in the casualty-clearing-station areas two centres for laboratory diagnosis would be provided—the first consisting of mobile laboratories, each of which would serve a group of casualty clearing stations, further, in each station a room would be set aside provided with all the necessary equipment for malarial investigation Panniers for field ambulances had been in use in Palestine and on the North West Frontier in India and had been reported as satisfactory. Panniers would be held in reserve at the base hospital laboratories and could be sent forward and put into use immediately Regular medical officers in the R.A M C. received instruction in tropical diseases with special attention to malaria, and the short-term doctors were given an intensive course of training The supply of laboratory assistants had not been overlooked and a large number were now receiving instruction. The supply of drugs other than quinine had been considered and would be available during the next few months, and no difficulty in obtaining supplies of stains was anticipated The Director-General of the Army Medical Service was fully alive to the importance of the subject and would avail himself of the knowledge and assistance of expert malariologists should the necessity arise

Colonel J A MANIFOLD agreed with the president that the failure to control malaria in peace-time was very dangerous in war but, speaking from his own experience in India, it was the civil authorities who needed the warning the president had given He himself took gr. 10 of quinine per day; he had malaria all the time but he went to bed for three or four hours, had a bath and went on with his work Anybody taking quinine was unlikely to go down with blackwater fever. The people who stopped taking their quinine and then took a large dose died of blackwater fever, while those who persisted with their gr. 10 had mild attacks and came through.

Colonel S P. JAMES thought that the report of the Malaria Commission of the League of Nations would be very useful in deciding what measures should be adopted in particular areas. The method of spraying buildings and tenants every day and thus killing the adult mosquito was very good and one for which energetic preparations should be made. They should forget that quinine did not prevent infection and concentrate on the knowledge that gr 5 a day would prevent clinical attacks

Dr P MANSON-BAHR said it fell to his lot at the end of 1917 to train officers and men in the field in the technique of diagnosing malaria Six extremely mobile malarial diagnostic units were formed They were mounted on G S. wagons, provided with microscopes, stains, quinine and syringes, and could diagnose and treat malaria in the field at the earliest possible moment In the advance of October, 1918, these units were effectively used and followed Allenby's cavalry for 400 miles as far north as Aleppo The total number of blood-examinations done in the last year of the war was 146,000 The great danger for troops on the march was the subtertian parasite, the incubation period of which was ten days The Jordan Valley was the home of subtertian parasites, whereas on the Auja side the benign form was predominant. They used only six medical officers, twelve orderlies, twelve mules and six wagons

Sir WILLIAM WILLCOX said that a force was sent to Mesopotamia without any protection early in 1916 and every member of that force was undoubtedly infected There was a severe epidemic of influenza of a most malignant type associated with jaundice; on investigation a symbiosis was found—the influenza had lit up the latent infection of malaria.

The Lancet 100 Years Ago

Oct. 26, 1839, *p.* 183

From an article on the treatment of fractures

. . The objections against early bandaging do not apply to the plan, long ago practised by Cheselden, and lately revived in this country, of treating fractures by an immovable apparatus It consists simply of calico-rollers, wetted with mucilage of starch, and applied moist after the *adaptation of the fractured extremities of the bone* The bandages are then soft, and adapt themselves to every irregularity of the surface, but on *drying*, which takes place in from 24 to 48 hours, they form a hard case, which effectually prevents motion; so that the patient can move about on crutches, after a few days, without the slightest danger of producing displacement Some similar mode was evidently practised by the Egyptians, as mummies have been found with fractures put up in an *immovable* apparatus, probably a solution of aromatic resins in spirit, with which the swathing cloths were imbued And among the Arabians and Persians, to the present day, this mode is practised Baron Larrey was the first who introduced it into Europe, after he had used it extensively in Egyp

REVIEWS AND NOTICES OF BOOKS

Operative Orthopedics

By Willis C Campbell, M D, Memphis, Tenn London H. K. Lewis and Co 1939 Pp 1154 55s

The advances in orthopædic surgery of the last ten years have not so far been stabilised by any recognised authority, so that this comprehensive work, written on a basis of long experience, will be welcomed Dr Campbell does not claim to catalogue all operations on bones and joints, but few are omitted Those in current practice are fully described, with shrewd comment, and the new operations are also outlined adequately The book begins with a chapter on physiology and pathology, which sets out the problems which any orthopædic operation has to contend with The next is a valuable one on the splints and appliances in common use—no museum pieces—for which the surgeon has usually to rely on instrument catalogues Aseptic technique is considered in great detail, and this is followed by a chapter on the various approaches used in the operations, many of which are not yet widely used in this country Dr Campbell fully describes the operations used in treating acute and chronic arthritis but is rather sketchy with regard to the indications for them No such criticism can be made of his masterly chapters on arthrodesis and arthroplasties His account of the operative treatment of fractures covers every type of importance. He uses vitalium plates and screws freely even in certain compound fractures, which is contrary to accepted practice, but he says that he is justified by results In dealing with bone grafting he pleads for the "onlay" graft This is an autogenous graft fitted to the side of the bone by means of autogenous bone pegs or vitalium screws, and should certainly give much more fixation than the inlay or intramedullary type of graft His chapters on plastic surgery and the surgery of peripheral vascular disease are short, and these subjects so intimately concern the orthopædic surgeon that they might well be expanded Printing and illustrations are well done, and Dr Campbell writes in an attractive "English" American which reads pleasantly and easily The work should become a standard textbook

Herz- und Kreislauferkrankungen in ihren Beziehungen zum Nervensystem und zur Psyche

By Dr Ed H D von Witzleben, chief medical officer, Kreischa Sanatorium Dresden Leipzig Georg Thieme 1939 Pp 101 Rm 4 50

A half hearted disciple of the new psychosomatology Dr von Witzleben sets out to consider the cardiovascular system in relation to the nervous system and the psyche His wide experience in cardiology neurology neurophysiology and psychiatry enables him to survey adequately the nerve supply of the cardiovascular system On physiological topics such as the tone of cardiac muscle, the cardiac nerves, "sympathin" and the parasympathetic choline esters pressor control from the carotid sinus, and the central vasomotor centres the book is more than adequate The author goes on to discuss psychiatric manifestations of hypertension hypotension and cardiac disorders He considers cardiovascular epilepsy a syndrome which continental observers make out of angina in epileptic patients this is sometimes supported by the postmortem finding of areas of myocardial necrosis presumably the result of vasomotor ischæmia Chapters follow on the influence of emotion on the cardiovascular system and on "the nervous heart" His outlook on these matters is best indicated by his agreement with Fränkel that in "cardiac neurosis or psychosis a strophanthin injection is the best and only psychotherapeutic method" Although Dr Witzleben apologises for it in the introduction his title illustrates the tendency to give neurological works a name implying that they deal with psychology The last three words of the title should in fairness have been deleted The scope of the material covered is limited almost exclusively to German authors and there are no references or index

The Infant

A Handbook of Management (2nd ed) By Wilfrid J Pearson, D S O, M C, D M, F R C P physician in charge of the children's department, University College Hospital, and Arthur G Watkins, B Sc, M D, M R C P, physician in children's diseases, Cardiff Royal Infirmary London H K. Lewis and Co 1939 Pp 50 2s 6d

In this edition a short chapter on the premature baby has been added and several chapters revised It provides useful tables of infant foods, formulæ and stages of physical development, and there is much information on the management of the normal baby in a form suitable for ready reference It should continue to be of use to students and nurses who have little previous experience of infants but it is hardly informative enough for the practitioner

Post-mortem Appearances

(4th ed) By Joan M Ross, M D Lond, reader in pathology in the University of London, morbid anatomist to the Royal Free Hospital late assistant pathologist to St Mary's Hospital London Humphrey Milford, Oxford University Press 1939 Pp 275 7s 6d

This little book is becoming something of an institution for its value to students in the post mortem room and museum is by now firmly established This present edition has been improved by general revision new sections on stillbirths and neonatal deaths and a rewritten section on blood diseases The same valuable appendices on normals in measurement weight and development together with umbilical cord changes lie at the end ready to prime the "occasional" morbid anatomist The book can be recommended as a practical manual of the first order

Infra-Red Irradiation

(2nd ed) By William Beaumont M R C S hon physician and medical director, Institute of Ray Therapy, physician in charge physiotherapy department, Westminster Hospital, London London H K Lewis and Co 1939 Pp 150 6s 6d

This useful little book has been enlarged but it still maintains its original simple form It includes a chapter on physics and a section on the various forms of apparatus available Technique is carefully discussed and so is the physiological basis of the methods recommended Dr Beaumont carefully brings out important points such as the advisability of giving massage before infra red irradiation and never after it because of the possibility of injury to dilated blood-vessels should the massage be too vigorous The most important symptom treated with infra red irradiation is pain but the various types of pain are not at all adequately distinguished There is, however a welcome caution about the claims made for the relief of such organic conditions as osteoarthritis and true neuritis The book may be recommended as a practical primer

Laboratory Methods of Biochemistry

By A. BERTHO and W. GRASSMANN, Munich and Dresden. Translated by W. MCCARTNEY, Ph D., Imperial Bureau of Animal Nutrition, Rowett Institute, Aberdeen. London · Macmillan and Co. Pp. 281. 18s

HERE we find a very good summary of modern biochemical methods, but it is only suitable for advanced students, since it is mainly devoted to special techniques A quotation from the preface shows for whom the book is intended "A modern laboratory equipped for instruction and research will not lack the apparatus necessary for the course (thermostat, one or two centrifuges, apparatus for measurement of pH, Van Slyke apparatus, polarimeter, Warburg apparatus) any more than it will lack a combustion apparatus or a Zeisel apparatus" It can well be seen that if the equipment mentioned is regarded as ordinary laboratory ware the book will have a distinctly limited public south of the Tweed

Surgical Anatomy

(2nd ed) By C LATIMER CALLANDER, A.B., M.D., F.A C S., associate clinical professor of surgery and topographic anatomy, University of California medical school; visiting surgeon, San Francisco Hospital. London: W. B. Saunders Company. 1939. Pp. 858. 45s

AMONG the many excellent books on surgical anatomy, Professor Callander's deserves a very high place It is a large book certainly, but it is so interesting that once it is opened the reader is reluctant to lay it down In this new edition the newer operations, such as those on the sympathetic, are all dealt with adequately. More than a hundred new illustrations have been added. These are a great feature of the book. It is an entertainment to turn over its pages and look at the pictures; for they show surgical anatomy in a clear and quite original fashion. Not only is there an appeal to students up for their qualifying examination, but also to all practising surgeons

Bacteria, the Smallest of Living Organisms

By Dr. FERDINAND COHN (1872). Translated by CHARLES S. DOLLEY (1881). Baltimore. Johns Hopkins Press 1939. Pp. 44. $1.00.

IN his introduction to Cohn's essay, Leikind has given a brief account of his life and contributions to bacteriology. The book reminds one that when they made their discoveries, Pasteur and Koch were actually riding the crest of a wave Writing sixty-seven years ago, Cohn has sketched the development of knowledge from Leeuwenhoek onwards, and has given a masterly exposition of the state of bacteriology when Koch was still an unknown physician Cohn has much to say on the size of bacteria, their morphological classification, motility and growth, relation to putrefaction and fermentation, and their association with disease of animals and man He understood remarkably clearly how bacterial disease is spread. Some of his calculations of the numbers and volume of bacteria present after unlimited multiplication for various periods of time are inaccurate In diphtheria, spherical bacteria are suspected; the diphtheria bacillus was not described until eleven years after this essay was written. Nevertheless there is little which is wrong, and the reader will agree with Leikind that "Cohn tilled the soil in which Koch's genius came to flower"

SCIENCE AND ANIMAL WELFARE

RATHER more than a year ago UFAW (the Universities' Federation for Animal Welfare) decided to appoint a committee of scientific workers to consider animal welfare, and to recommend grants for appropriate research and field investigations. The committee consists of H. E Bargmann (Discovery Investigations), Prof. T. Dalling (Institute of Animal Pathology, Cambridge), James Fisher (Zoological Society of London), E. O. Forsberg (Food defence plans dept), Paul Haas and Miss I C. Ledingham (University College, London), H. R. Hewer (*Chairman*—Imperial College, London), C. W. Hume (Patent Office), Prof. W. C. Miller and Prof. J. G. Wright (Royal Veterinary College, London), D J Anderton Sharpe (Elizabeth Garrett Anderson Hospital), W. R. Wooldridge (London School of Hygiene), and A N. Worden (*Secretary*—Lister Institute). The progress during the first year of the committee's work has been most encouraging, and the following are among the subjects which have been dealt with:—

The rabbit problem—A grant has been made towards the costs of research on rabbit ecology, which is being carried out at the Bureau of Animal Population, Oxford. UFAW has also been directly concerned with the biggest step yet taken to check the rabbit menace in Great Britain, the Prevention of Damage by Rabbits Act, 1939, which the federation promoted. On Skokholm Island off the Pembrokeshire coast UFAW has helped in the attempt to carry out a wholesale cyanide fumigation of the warrens supplemented by ferreting and shooting and it is intended to try to complete the eradication of the rabbits this winter and so render the island suitable for farming. Some years ago an attempt was made to clear Skokholm of rabbits by introducing infectious myxomatosis—the highly fatal disease of rabbits due to a filtrable virus described by Sanarelli This venture proved unsuccessful, and it will appeal to humanitarians and agriculturists alike if the humane methods now adopted should be successful. Another area eradication experiment is being supported in Cornwall.

Anæsthetics for animals—A study has been made of the Animals Anæsthetics Act, 1919, and its anomalies and omissions call for early revision Accordingly the National Veterinary Medical Association has been approached and has agreed to form a committee of experts to deal with the matter. Animal euthanasia has also been studied, a subject increasingly important in view of the widespread destruction of dogs and cats at the outbreak of war. One recent suggestion concerns the use of drugs which although potent narcotics have not been marketed for clinical use on account of their high toxicity or narrow therapeutic margin. Suggestions about such drugs would be welcomed

Trading in pet animals—While it seems certain that this will diminish considerably during the war, every effort is being made to provide for better care of such animals before and after purchase Malnutrition and the spread of disease come as much from ignorance as from deliberate neglect, and it is in the trader's own interest to maintain healthy stocks. Hence the importance of spreading information about animal hygiene and dietetics.

Electric goad.—The use of this instrument for droving has been considered, and field experiments are being carried out at an agricultural college to test its efficacy and to assess, if possible, whether there is any cruelty associated with the method.

Individual members of the committee are engaged in compiling bibliographies and abstracts on relevant matters, and it will perhaps be possible to publish these in the future All who are interested in these projects are asked to communicate with the honorary secretary at UFAW's headquarters, Gordon House, 29 Gordon Square, London, W.C 1.

THE LANCET

LONDON: SATURDAY, OCTOBER 28, 1939

THE UPSHOT OF IT

A FEW years ago when a very distinguished personage, as president of a great teaching hospital, was inaugurating the first instalment of a rebuilding scheme he pressed a button and started a light revolving on the top of the tower. Taken a little aback, he turned to the dean who was standing by him and murmured "Good Lord, what have I done now?" We can imagine the Minister of Health making some such ejaculation when he first realised the inexorable upshot of his Emergency Hospital Scheme. Designed to serve the purpose of a moment it has set going wheels which will turn and turn until the whole aspect of hospital and consulting practice, as we knew them as lately as the end of last August, has changed beyond recognition. On another page our special commissioner sets out the situation as he sees it and adds some reflexions of his own. There is nothing particularly novel about the facts, they are all there for those who care to face them, although the assemblage of them in this form may be impressive. In some ways the situation is more revolutionary than he has painted, but time is a healer and what now seems a revolution may be seen later to be simply a stage in rapid evolution.

It has taken another war to make the majority of people realise the folly of the existing haphazard distribution of our large hospitals; now that the redistribution which some of the more far-sighted have urged for years has come about, every effort should be made to prevent our going back to our old mistaken ways. Hospital work should be a career in itself; in this direction municipal systems have given a lead. Hospitals exist for the benefit of the public—the personal convenience of the staff is of less consequence—and if staffing on a whole time basis makes for efficiency in work and administration then it must have come to stay. No harm would be done if all hospital appointments were made from those who have had some experience in general practice. With such a background, and with regular attendance in the outpatient department, no whole time physician or surgeon is likely to miss the helpful experience he now gains in his private consulting room. But regionalisation should not stop with the big general hospitals; there is just as much to be said in favour of regionalising isolation hospitals, epidemiological work, housing and town planning, and education (especially higher education). The ideal area for hospital administration is also the ideal one not only for all sorts of public health work but for other large scale public activities as well. The areas into which this country is divided for administrative purposes have a historical and sentimental interest, but little else to commend them. Sufficient scope would remain for local patriotism after the redundant work of local authorities had been transferred to regional control.

Our commissioner may or may not be right about the advisability of retaining many independent units in every large hospital. A man does not need to be in full charge of so many beds or so many laboratories to retain his independence. Any appointed teacher of a university enjoys complete professional freedom, subject only to such control as is necessary for the proper conduct of the department in which he works. It might make for smoother administration if every hospital had a senior in each main department, and there are many who doubt whether it is possible to run an efficient institution wholly by a committee, although the voluntary-hospital system provides the strongest evidence that it is. If the immediate future is to breed a new race of whole time hospital physicians and surgeons, there is no reason why it should not also breed a bigger and better type of hospital medical administrator. But in the matter of central control no medical man will be in doubt. If freedom is necessary among the professional staffs, elasticity of mind and liberty of action are equally necessary in the governing body. Whatever else is left open at present, let us all agree that the control of the new regionalised hospital system should be in the hands of an independent corporation.

TISSUE CULTURE MADE LIVELY

TISSUE culture in glass slide, bottle or tube has always been open to the objection that living conditions here are far removed from nature. The circumvention of this objection and the invention of a transparent chamber for use in living tissue are due to the persistence of E. R. CLARK and J. C. SANDISON with other collaborators of the anatomy department of the University of Philadelphia. CLARK first solved certain problems relating to the development of lymphatics and the details of inflammation by observation of micromanipulation and injection in the tadpole's tail. So thin and transparent is the tail that individual cells can be identified and their behaviour watched with suitable microscope objectives. CLARK'S next aim was to extend his studies to the mammalian kingdom and SANDISON produced in his laboratory the first transparent vascularised observation chamber in the rabbit's ear. In this type of chamber a space punched out of the ear is enclosed between two transparent surfaces, and within a few weeks under suitable conditions this becomes filled with reconstituted tissue. Blood-vessels grow in, capillaries, arteries and veins form a network over the space, nerves and lymphatics sometimes regenerate, and fibrous tissue histiocytes and macrophages appear. Abnormal conditions can be created, dyes injected, drugs added, foreign bodies inserted and the responses watched with all microscope objectives including the oil immersion. Here clearly are opportunities for tissue culture in the living animal, for checking ideas about inflammation and solving a host of problems amenable to visual observation

The latest improvements in the technique, together with a study of the fate of blood-monocytes, are recorded by Ebert and Florey.[1] Their ingenuity has brought the apparatus to a great state of perfection, and the fine microphotographs they publish give only an indication of the beauty of the coloured cinematograph films they showed at the meeting of the Pathological Society of Great Britain and Ireland in July. Actual living specimens revealing rapidly flowing blood, rolling leucocytes, shoals of platelets and contractile vessels should be available for teaching in all medical schools.

It is a tribute to the accuracy of observers using the old indirect methods that so far little new knowledge concerning inflammation has been revealed and few misconceptions have been detected. Nevertheless many controversies remain unsettled, and among these the origin, function and fate of the monocyte have probably caused more divergence of opinion and incidentally more confusion of terminology, than any other By consecutive observations of the progress of the same cell marked by its content of vital dye or india ink, Ebert and Florey traced the passage of blood-monocytes through capillary walls into adventitia and periadventitial tissue. Outside the vessels these dye-containing cells became gradually indistinguishable from tissue histiocytes (resting wandering cells of connective tissue) Thus what has long been suspected to be the fate of blood-monocytes, namely, their development into tissue histiocytes and macrophages, has been confirmed by the direct observation of living cells Concerning their origin, Ebert and Florey confirm the view that monocytes do not arise from ordinary blood-vessel endothelium They offer conclusive evidence that all histiocytes within the chamber are derived from blood-monocytes, but their method cannot answer the question whether in normal tissue extravascular histiocytes are supplied wholly or only in part from the blood-stream The newly constructed vascular tissue differs from normal in several respects It is granulation tissue when forming and vascular scar tissue when healed. Those structures which are capable of regeneration may grow or migrate in; arteries and veins do so regularly, but lymphatics which proliferate luxuriantly in ordinary injuries do not appear invariably in any chambers and seldom in the very thin ones. All mesenchymal cells of embryonic origin which connective tissue is said to contain are removed with the punched-out area and are therefore absent from the chamber unless their own motility takes them in from the surrounding normal ear. Among those so removed there may be extravascular histiocytes Both histiocytes and lymphocytes are sluggish, and from Ebert's and Florey's own account the former do not move far enough to migrate in from the ear outside the chamber All work on these living-tissue cultures will have to take this limitation into consideration, that the new tissue is the product of pathological change and is in essence a modified scar

COMFORT IN SQUALOR

The evacuation of children and mothers from town to country has produced unexpected problems of behaviour Misfits there were bound to be, because of different standards of conduct, language and cleanliness, and perhaps of diet; but nobody foresaw that country life per se would be so unbearable to town-dwellers as to send them back by thousands. The idea of nostalgia calls up visions of Caledonia stern and wild, or of the softer amenities of woodland and lea with the distant sound of village bells, and we are loth to grant the same emotional value to the surroundings of the humble in towns—the crowded streets, gossiping neighbours, and opportunities for the easy satisfaction of moderate desires like the appetite for fish and chips

In spite of our subjection to poetic influences, we must admit that the townsman represents a higher stage in social evolution. The appeal of the country is to the primitive in us, and when we succumb to it we are avoiding the stress and responsibility of submission to the demands of a more civilised way of life. Man, too, is a social animal and likes to congregate, so that if we were dealing only with a choice between the pleasures of life in the country and in the town we might accept the return of the evacuees as reasonable though just a little bit awkward in the circumstances But when we read about their hurrying back to town after their first short experience of country life we read also the amazed comments of those who have just discovered that noise and crowd, and even squalor, may be as welcome to some as peace and quiet are to others It would be strange, however, if the townspeople's reactions were anything else Man being a social animal, to follow the ways of the herd comes naturally to him The stability of society depends on his capacity of absorbing early in life, and without question, the customs, traditions, and beliefs of his fellows; they are accepted as natural, and when a portion of the herd is segregated enough to develop its own habits and traditions, which are different from ours and yet equally accepted as natural, the rest of us are taken by surprise

"Babies choose their own menus," was the title of an annotation in our last issue, and although what they chose looked sometimes like a dietitian's nightmare, yet they flourished healthily and their diet must therefore have been well balanced The influence of herd beliefs had been excluded in this experiment, but we cannot carry it further and offer free choice of town or country, crowd or quiet, to the young They must accept what their environment offers, and we must regard it as fortunate that adjustment can take place to conditions that are felt by us as repugnant and yet are forced on many people This is a different standpoint from that which pictures a strange community in our midst which by some freakish providence is so constituted that noise and squalor are natural to its members The adaptation of the evacuated people to their new and strange conditions will only be brought about without friction and ill-will if their new neighbours understand their state of mind and help them to readjust it

---

[1] Ebert, R H, and Florey, H W, *Brit J. exp Path.* 1939, 20, 312

ANNOTATIONS

FRACTURES OF THE JAWS

THE need for cooperation is particularly obvious in the treatment of fractures of the jaws, whether in peace or war The first-aider and the general, dental or plastic surgeon must each know enough of the other's subject to appreciate its special problems and its relation to his own work An opportunity of studying the dental surgeon's point of view was provided by a symposium at a meeting of the British Dental Association[1] Mr F St J Steadman showed how in the less severe fractures of the mandible displacement depends on muscular action and the resulting deformity is determined by the site and direction of the fracture For instance, in a fracture running from the ascending ramus downwards and forwards to below the last molar tooth there may be no displacement, for the temporal and masseter muscles pull the posterior fragment upwards and the mylohyoid pulls the anterior fragment downwards the two fragments are in this way locked together In some cases, therefore, no artificial fixation is necessary and Mr Steadman claims good results by following this principle He admits, however, that his policy of non-intervention cannot be adopted in severe injuries and gun-shot wounds In severely shocked cases and in those where there is much swelling or sepsis Mr Harold Round advises that immobilisation should be postponed for a few days, during which time fomentations may be applied and oral irrigation given The irrigation should be done with saline, an alkaline wash or a weak solution of tincture of iodine hydrogen peroxide should be avoided, for it is likely to spread infection The method of choice for immobilising most fractured mandibles is, he says, interdental wiring, which was first used by Hippocrates A general anæsthetic (preferably intratracheal) is usually necessary and a suitable tooth in the upper jaw is fixed to a corresponding tooth in the displaced mandibular fragment by means of stainless steel wire The "eyelet" method of wiring has certain minor advantages In edentulous patients the dentures may be used as splints combined with some form of jaw bandage, but sometimes splints have to be fixed by means of circumferential wiring Mr Kelsey Fry urged the advantages of splints over interdental wiring in many cases He prefers metal cap splints, which are particularly useful in severe injuries when the remaining teeth are few and awkwardly placed for wiring Mr Fry believes that every fracture should be immobilised immediately when the patient is badly shocked a temporary eyelet wire should be fixed at once and splints can be applied later Mr A H Parrott dealt with both the prevention and treatment of fractures of the maxilla Most bilateral fractures of the maxilla are due to motor and especially aeroplane accidents, and in the last war Mr Parrott introduced a padding device for the coaming round the cockpit which was adopted by the Air Ministry The immobilisation of a fractured maxilla may often be effected by splinting it with the mandible, but in severe injuries this is inadequate and in any case prolonged fixation of the undamaged lower jaw is undesirable Mr Parrott has devised a splint to solve this problem a silver cap splint is fitted to all the teeth in the upper jaw, a moulded vulcanite appliance is then prepared to fit accurately on the lower part of the forehead, on the bridge of the nose and into the upper part of the orbits, these two units are then connected by metal tubes passing down the sides of the nose and through the angles of the mouth, and finally the whole splint is secured by straps round the head from the frontal component He claims that this appliance has several advantages over the older Kingsley splint it not only immobilises the fracture but allows mastication because the upward pressure of the mandible is transmitted from the cap splint to the upper border of the orbits, so that the maxilla is left undisturbed, moreover, the absence of projections from the side of the face allows the patient a freer and more comfortable contact with his pillow

ANTIMONY POISONING

FROM time to time antimony poisoning follows the use of enamelled hollow ware in which antimony oxide has been employed to render the enamel opaque As a rule the victims have drunk acid beverages, such as lemonade and limade, which have been standing in enamel vessels long enough to dissolve the antimony oxide in the enamel and to form compounds for example tartar emetic Excluding such examples of misguided catering, however, poisoning with this metal appears to be rare In industry the use of antimony compounds is limited, and even in the smelting of antimony ores few constitutional disturbances have been described Local irritation of the skin in the form of antimony "lumps" or "pocks" is known to occur, but some writers ascribe these and all other observed effects to the constant presence of arsenic as an impurity in the antimony ores The skin troubles encountered certainly do resemble those caused by arsenic, and the constitutional symptoms, such as vomiting, colic and diarrhœa in acute cases, and indigestion, anorexia and loss of weight in the chronic form do simulate arsenical poisoning

Recently Feil[1] has described the findings in his examinations of 15 men who were working in a foundry where antimony ore was being smelted On analysis the ore consisted of quartz, antimony sulphide (15–50 per cent), and traces of gold and arsenic In the richest specimens the amount of arsenic did not exceed 10 mg per kg , and Feil therefore maintains that any clinical effects that he found in the workmen could not possibly be ascribed to arsenic The men were exposed to the fumes of antimony oxide at various times during the process of smelting as for instance when the furnaces were opened to be charged with coke and ore, and when the molten antimony was being run off Of the 15 studied, 7 had an antimony rash" at the time of examination, while 7 others gave a history of previous skin trouble and some of them showed scars it had left The rash in its acute form is very itchy and its component parts resemble chickenpox and smallpox The lesion begins as a red papule raised about 2 mm above the skin level and sooner or later a vesicle appears in the centre developing finally into a pustule. In the course of a week it drys up and a crust forms over it. The eruption spreads in successive crops and it is common to find in one case rashes of different stages of development—either papules, vesicles, pustules and crusts or even ulcers and eczematous lesions if the patient has scratched his skin The affection is commonly seen on the neck, the forearms and the lower limbs, but any part of the skin area may be involved; it lasts about three weeks, and disappears spontaneously, especially if the man gives up his work for the time being. It is usually worse in the summer, and is aggravated by scratching, heat and excessive sweating. Only one of the 15 workmen had not suffered from an antimony rash, but he had shown some constitutional symptoms of poisoning by the furnace fumes The symptoms troubling these men were slight, the list includes conjunctivitis, tracheitis, pharyngitis, anæmia, headache, vomiting and anorexia, and Feil rightly points out that some of these could have been caused solely by the heat of the furnaces. But he does not make out a convincing case for the view that the signs and symptoms are due to antimony, nor has he established that arsenic was not partly responsible for the clinical features described. A low percentage of arsenic in the ore does not necessarily mean that a higher concentration would not have been found in the furnace fumes if they had been chemically analysed

---

[1] *Brit dent J* Sept 15 1939 p 273

[1] Feil, A *Pr méd* July 19 1939 p 1136

SULPHONAMIDES AND BLOOD PIGMENTS

WHILE the use of the sulphonamide group of drugs is still largely empirical, more and more is becoming known about their toxic actions; and these may provide the clue to the therapeutic value One of the least serious, but not the least interesting, toxic effect is the development of methæmoglobinæmia and sulphæmoglobinæmia. All accept these complications as common—varying between 20 and 50 per cent—but they are certainly commonest in the clinics where spectroscopy is most carefully carried out The truth is that the detection and differentiation of abnormal blood pigments, especially in minimal amounts, requires considerable and specialised skill, and it is therefore important that reports concerned with these phenomena should state what methods of examination have been employed Harris and Michel,[1] using a sensitive method of detection, have been able to demonstrate methæmoglobin in the blood of 277 out of 476 patients receiving sulphanilamide (*p*-aminobenzonesulphonamide) and find that the average methæmoglobin content was proportional to the sulphonamide concentration These figures agree with those of Wendle[2] and Campbell and Morgan[3] In addition, Harris and Michel find that within certain limits the methæmoglobinæmia tends to diminish with the duration of therapy This, together with the observation that methæmoglobinæmia rapidly disappears when sulphonamide treatment is withdrawn, leads them to conclude that the pigment is produced by oxidation of the hæmoglobin by a derivative of sulphonamide and is reduced to hæmoglobin by the tissues, so that its accumulation in the blood will depend on a balance of these factors That a menthæmoglobin-forming substance is formed from sulphonamide in the tissues is demonstrated by the experiments of Harris,[4] who shows that when a solution of sulphonamide is incubated with rat liver it acquires the property of oxidising hæmoglobin to methæmoglobin.

While these observations make suggestive contributions to the pharmacology of sulphonamide compounds, one is again struck by the anomaly that *p*-aminobenzenesulphonamide apparently gives rise to methæmoglobinæmia in the United States but not in this country. It would therefore be useful if in Britain a series of cases as large as that of Harris and Michel could be examined with equal care We also need further light on the capacity of different members of the sulphonamide series of drugs to cause alteration in blood pigments. Dubort and Durel[5] find that *p*-acetylaminophenylsulphonamide often produces cyanosis, *p*-aminophenylsulphonamide less often and *p*-aminophenylsulphonamidopyridine, sulphamido chrysoidine and benzyl *p*-aminobenzenesulphonamide only very rarely. The in-vitro method described by Harris[4] may provide a ready means of confirming these conclusions, which must, at the moment, be based chiefly on impressions.

ADRENALINE IN MALARIA

ASCOLI's method of treating malaria consists in daily intravenous injections of a progressively stronger solution of adrenaline in conjunction with the customary quinine therapy. It is usual to begin with 1 c.cm of a 1 in 100,000 solution, followed the next day by 1 c cm of a 1 in 90,000, the next by 1 c.cm of a 1 in 80,000, and so on by daily reductions of the dilution until a strength of 1 in 20,000 or 1 in 10,000 is reached, the final concentration being used for three or four weeks more. By this method the body becomes accustomed to tolerate massive doses of adrenaline This cannot be done by subcutaneous injection, because of local reactions Care must be taken that the adrenaline is of the best quality and the solution freshly prepared. It is claimed that the first injection is followed quickly by a diminution of fever, a normal blood-picture, a feeling of better health, and a decrease in the size of the spleen; and that the full course of injections will prevent relapse for about a year. The idea is that adrenaline causes the spleen to contract and thus compels the parasites, harboured in the splenic parenchyma, to emerge into the blood-stream, where they can be attacked with quinine The adrenaline is also thought to have an action, not yet understood, which counters the development of anæmia

Boccia and Matteo,[6] of Buenos Aires, report the successful use of Ascoli's method in the case of a general paralytic in whom quartan malaria had been induced therapeutically, the fever becoming uncontrollable by the usual measures and the patient apparently moribund The effect of the first intravenous injection was instantaneous; there was no more fever, and during the course of treatment the patient quickly regained not only his general health but also a less clouded mind. The rapid cure of neurological complications of malaria is reported by Pizzillo,[7] of Palermo, who gives details of one case with symptoms of cerebellar disorder and of two cases of sciatica and cites Longo's case of malarial polyneuritis cured by only eight injections of adrenaline Conflicting results are reported from Sardinia Mastio[8] claims success in 46 out of 48 cases in which adrenaline was given by mouth instead of by intravenous injections; but prolonged oral administration of this drug is not to be recommended for, apart from the question of efficacy, it is said to cause gastro-intestinal changes.[9] Casini,[10] on the other hand, reporting on adrenaline therapy in 48 splenomegalic cases of malaria matched by 36 carefully selected controls, concludes that it does not activate the latent infection, does not reduce the size of the enlarged spleen, and does not improve the blood or the general health. Attacks of malaria and reduction in the size of the spleen were similar in the two groups. These unfavourable conclusions are supported by those of Marotta,[11] in Sicily, who finds that adrenaline does not influence malarial manifestations and that the contraction of the spleen lasts only three or four minutes. Ascoli's method has also been recommended in the treatment of hæmorrhagic tendencies, hæmolytic splenomegaly, and kala azar.

---

[1] Harris, J S, Michel, H O, *J. clin Invest.* September, 1939, p 507

[2] Wendle W B, *J Lab clin Med* 1938 24, 96

[3] Campbell, D, and Morgan, T N, *Lancet*, July 15, 1939, p 123

[4] Harris, J S, *J clin Invest* September, 1939, p 521

[5] Dubort, P, and Durel, P, *Ann Méd* 1939, 46, 56.

[6] Boccia, D, and Di Matteo, T. B., *Rev. Sud-Amer. Endocrinol* Feb. 15, 1939, p 80

[7] Pizzillo, G, *Riv Malariol* 1939, p 211.

[8] Mastio, C, *Rassegna clin Terap. Sci. affini*, January-February, 1939, p 23.

MEDICAL MOBILISATION IN FRANCE

LAST month Monsieur Daladier and the Ministers for Public Health, Finance and the Interior presented the draft of a decree providing for the regulation of medical practice in war-time *and for its proper* remuneration. Thanks to the special powers granted to the French Government by the law of March 19, 1939, it was possible for this decree to be put into effect at once. All doctors not liable to be called up for military service must, if they are of French nationality, put their services at the disposal of the Public Health Ministry for the requirements of the civil population. These doctors may be required to *continue* working where they were or may have to go elsewhere. The decree lays down the conditions under which remuneration is to be given for war work and the scale of this remuneration. French women doctors come under the same rules as their male colleagues. Dr. Dreyfus-Sée, vice-president of the *Association française des femmes médecins*, has issued an appeal to all the members of this organisation to send her information about the subjects in which they have specialised, the most important appointments they hold, the free hours at their disposal, and the regions in which they would prefer to be employed. In the meantime the surgical services have been or will shortly be discontinued at the following Parisian hospitals: Pitié, Cochin, Necker (adults), Lariboisière, Maison Dubois, Broca, Ambroise-Paré, Petits-Ménages, Trousseau, Ivry and Saint-Louis (children).

VALUE OF BLOOD-ALCOHOL ESTIMATIONS

WHEN precise quantitative estimation of blood alcohol was first introduced, about a decade ago, hopes were aroused that it might solve a difficult legal problem. Most countries have strict legislation against drunkenness in charge of a motor vehicle, and if the state of drunkenness could be established quantitatively much of the difficulty inherent in accepting the opinion of eye-witnesses could be overcome. But though the passage of years has proved E. M. P. Widmark's micro method of estimation to be *extremely accurate* it has also demonstrated the fallacy of attempts to connect it at all closely with a legal standard of drunkenness.

Dr. John McGrath in a useful review[12] says that the blood alcohol content in a specimen or a corpse remains unchanged for at least a fortnight. Other things being equal, the blood alcohol is proportional to the total amount of alcohol ingested; but when the drink is strong, the blood alcohol is higher than when it is dilute. Severe injury or hæmorrhage may disturb the absorption and metabolism and retard the fall in the content; vomiting, curiously enough, is followed by a rise. Food not only checks the increase but greatly reduces the maximum content. The most difficult factor is the influence of habit and addiction. The blood-alcohol is closely related to the brain alcohol, but many people have a "concentration tolerance" which enables them to remain comparatively sober when their blood alcohol is high. Hellwig[1] cites many cases to show the mistakes that may be made through undue reliance on laboratory findings, an error to which German courts seem liable. Coffee diminishes the effects of a given content on the brain cells; ephedrine and insulin counteract and smoking increases the effect of alcohol. It is therefore not possible to rule a line, as Widmark once attempted to do, at 160 mg. per 100 c.cm. and say that a person who shows more is incapable of driving a car. An efficient clinical examination made immediately after arrest will probably always be indispensable. Nevertheless, blood alcohol estimation obviously has a high corroborative value, and if the result is completely negative it clears the accused so far as alcohol is concerned.

SIR WILLIAM POPE

William Jackson Pope, whose father was in business in the City of London, was one of a group of boys who passed at a very early age across the playground of the City Central Foundation School in Cowper Street, City Road, to the Finsbury Technical College in the next street. Pope, like another Cowper Street boy, now Sir Gilbert Morgan, was more able than some to benefit by the change from the discipline of a school to the greater freedom of life at college. His contemporaries remember him as a brilliant youth of rather remarkable appearance whose sense of humour was perhaps more highly developed than that of the newly appointed professor of chemistry, Raphael Meldola. After a distinguished career at Finsbury and an interlude spent abroad, Pope went to the other City and Guilds College at South Kensington. Here he worked with H. E. Armstrong, who soon realised that he had under him a student of great promise and a man of ideas. Indeed Pope was probably Armstrong's favourite student. In 1908 Pope became professor of chemistry at Cambridge in succession to Liveing, who died a few years ago well over 90, of injuries sustained after being knocked down by a bicycle. Here Pope had more time for research and was able to surround himself with a zealous group of colleagues and research students.

Pope had vision. While working under Armstrong he began to study the somewhat unusual subject of crystallography. Pasteur, Le Bel and Van't Hoff had been able to connect optical activity with molecular asymmetry. Linking this with the knowledge he had acquired of the shapes of visible units of organic compounds Pope and his colleagues discovered the possibility of asymmetric grouping around atoms other than those of carbon. They then prepared optically active compounds of sulphur, selenium, tin and later of other elements. Pope and Barlow set forth a theory of molecular structure in three dimensions which sought to connect the arrangement of the atoms in a compound as ascertained by its chemical relations with its crystalline structure, a subject which was developed further by Bragg

---

[9] See *Lancet*, July 1, 1939, p. 31.
[10] Casini, G. *Riv. Malar.* 1939, p. 189.
[11] Marotta, G. *Ibid*, p. 191.
[12] McGrath, J. *Irish J. med. Sci.* July, 1939, p. 304.

[1] Hellwig, A. *Med. Welt*, Aug. 5, 1939, p. 1[illegible]3; Aug. 12, p. 11[illegible]

Besides his work on pure chemistry Pope made valuable contributions to the applied side of the subject. His studies on the cyanins carried on with members of the Cambridge school gave the photographic industry a serviceable group of sensitising agents During the last war, when the use of poison gases by the enemy forced us to retaliate, Pope introduced a new method for making mustard gas more satisfactory than any hitherto used either by us or the Germans.

But perhaps his most lasting achievement was the building up from a group of individualists at Cambridge of a first-class school of chemical research, which has since extended in many directions—biochemistry, physical chemistry, colloids and metallurgy, to mention but a few.

WHY NOT NUPERCAINE?

THE importance of having for every potent agent a name readily distinguishable from all others is sadly emphasised by a fatality at Bournemouth. The death resulted from the use of Percaine solution which was supplied to the doctor who asked for procaine. Percaine (Ciba) is of course much stronger than procaine, and it seems essential that if further like tragedies are to be avoided—and the above is not by any means the first—either "procaine" or "percaine" should disappear from our medical vocabulary Procaine, though perhaps less familiar than the proprietary equivalents, Novocain, Allocaine, Neocaine, Planocaine and others, is the name officially applied to the substance by the British Pharmacopœia and should presumably remain unchanged But it might be possible for the manufacturers of percaine to sell their product here under the name by which it is known in the United States—namely, Nupercaine It would then be easily distinguishable from procaine both in writing and in speech

EARLY HISTORY OF GAS GANGRENE

MAISONNEUVE is generally supposed to have been the first to separate gas gangrene as a distinct entity in 1853, but Dr. C. E Kellett[1] has discovered a letter written by Fabricius Hildanus to Gregorius Horstius in August 1607 which describes in clear and convincing terms what was certainly a case of gas gangrene

A farm labourer of 50 was run over by a cart wheel, which lacerated his left leg Three days later he was seized with violent pain in the calf. "I found," wrote Hildanus, "the whole of the leg below the knee gangrenous . . Furthermore as I began to shave off some of the hair above the knee on the outer aspect at a certain place I could make out a sound as if there were some sort of empty space underneath. . . . About ten that evening a vesicle the size of an egg arose in his groin beside his scrotum, black and filled with water like meat washings. On opening this the underlying flesh was found to be black and gangrenous: within the next two hours the scrotum became swollen to the size of a head and became gangrenous. At about the third hour after midnight he became covered with sweat, at first hot and then cold, and died peacefully, in the middle of a séntence, four days eleven hours after his illness commenced, twenty-four hours after the onset of the gangrene"

Hildanus was at the time an acknowledged authority on gangrene, and had published a monograph on the subject in 1593, but he was certain that his patient was suffering from a type of disease with which he was entirely unacquainted. Kellett believes that gas gangrene was rare before the middle of the 19th century He also suggests that up till then and for some time later the common form was that known as "hospital gangrene," which by 1874 was affecting some 80 per cent. of all wounds treated in some continental hospitals, and that it was the conquest of this dire infection by the triumph of antisepsis that brought gas gangrene into a prominent place

NEW YORK CONGRESS OF MICROBIOLOGY

LAST week our U.S.A. correspondent spoke of two international congresses which had been seriously affected by the situation in Europe One of these was the congress of microbiology held in New York which was attended by over 1000 members from the American continent, although the European visitors numbered little more than 15 from France and 35 from Britain. Among the latter were Sir John Ledingham, who presided at the previous congress held in London three years ago, Prof Alexander Fleming, Prof J R. Marrack, Prof. J. W. Bigger and Dr. Henderson Smith. With nine separate sections meeting each morning for five days the field covered was very wide and many subjects of topical interest, such as air-borne infections, chemotherapy of bacterial infection, and the relation of filtrable viruses to tumour formation, were discussed While there were no pronouncements of novelty or outstanding importance the congress was useful in tidying up some well-tilled fields For example, the association of pleuropneumonia-like organisms with rheumatic fever (Swift and others) had been shown by further work to be without the significance originally suggested On the other hand Horsfall described the isolation of several strains of virus from normal mice by passage of lung material, an observation with important bearing on experimental work in mice, particularly in relation to influenza. Further, the efficiency of yellow-fever vaccine, which had in previous years been regarded as almost complete, was shown by Soper and his colleagues not to have been so successful recently in Brazil where a certain proportion of inoculated individuals had contracted yellow fever later Although the scientific work of the congress may have suffered from the absence of the usual foreign contacts, the conversation in the lobbies and the almost astronomic hospitality were fully appreciated by those who were there.

MR. SETON PRINGLE, F.R C S I, has been elected president of the Royal Academy of Medicine in Ireland. Mr. Pringle, who is surgeon to the Royal City of Dublin Hospital, was lately president of the Royal College of Surgeons in Ireland.

Surgeon Lieutenant (D) WILLIAM AUSTIN DICKIE, R N, who went down with the *Royal Oak*, took his L D.S in Glasgow in 1936 and was appointed to a short service commission in the dental branch of the Royal Naval Medical Service in February, 1937.

We regret to learn that with the September number the *Birmingham Medical Review* has ceased publication until after the war.

Under the Cancer Act, 1939, local authorities were required to submit their arrangements for the provision of facilities for the diagnosis and treatment of cancer by March 1940 The Minister of Health now realises that local authorities have not been able to attend to this matter in recent months, and that it will generally be impossible for them to proceed with any scheme submitted in the near future so he has extended the period to March 1941

---

[1] *Ann med Hist* September, 1939, p. 452

SPECIAL ARTICLES

A PLAN FOR BRITISH HOSPITALS

(FROM OUR SPECIAL COMMISSIONER)

English people are not given to looking ahead They prefer to deal with the present, leaving the future to take care of itself And often they are right, for the gift of long range prognosis is rare In the last year, the Ministry of Health has done some detailed long range (or to be more accurate, medium range) planning and the Emergency Hospital Service is the result Had the situation for which it was designed—massive aerial attack on the civilian population—materialised, as it may yet materialise, the service would probably have escaped the shower of criticism to which it has been subjected But the organisation has in it the germs of something more than its builders intended, and it has come at an opportune time If its possibilities are to be realised, if from an eclamptic primigravida a lusty babe is to be delivered skilled and fearless accoucheurs are needed prepared not only to act but also to plan and think It is the purpose of this article to offer some simple suggestions for the accouchement

The Situation Reviewed

CONSULTANTS AND SPECIALISTS

Before the war, London consulting medicine was slowly dying Some gave it five years, some twenty, but none held out hope of an ultimate recovery In the provinces things were somewhat brighter and men in Liverpool, Leeds and Bristol could still make a good living in the honourable and honest way that was London's in the 1890s But even in the provinces signs were not lacking that the fate of London today would be the fate of Manchester tomorrow The causes of the decay of the consultant were as follows

1 *Growth of efficient general practitioner firms*—Each year a greater proportion of first rate students have realised that a comfortable living is not to be made in consulting work, at any rate for many years after qualification, and have accordingly become general practitioners And each year a greater proportion of general practitioners have realised the great advantages which come from working as a group Such a group or firm gives to each of its members definite off duty times and holidays It allows each member to develop a special line of work, while retaining the diversity of interests of general practice It enables a common secretary to deal with clerical work and accounts, and a common dispenser to make up medicines at reduced costs. The efficient firm (and there are many) practically never needs a consulting physician and seldom a consulting surgeon A discussion between the partners will solve almost all difficulties in clinical diagnosis The firm's physician usually does the clinical pathology, while most other important bacteriology and pathology is done free by the county council The firm's surgeon can deal competently with all minor and not a little major surgery, with his partners as anæsthetist and dressers The firm as a whole can do most ear, nose and throat work and most midwifery and gynæcology The consultants of whom the firm still stands in need are

(a) The radiologist
(b) The specialised surgeon—for the bigger abdominal operations, goitres, chests, growths of the breast and so on
(c) The *special* specialists—the ophthalmologist, the dermatologist and the psychiatrist.

The patient is almost always able to go to these consultants, the only ones who for the patient's good must still sometimes come to him are

(d) The obstetrician
(e) The abdominal surgeon
(f) The orthopædic surgeon

With an efficient firm, such country excursions are rare The rich may still demand a visit from the London specialist, when such a visit is medically unnecessary For the rest, the consultants get their patients by the charity of the G P s

2 The *large fees* charged by the specialists and consultants have put their services outside the range of whole sections of the population as a private proposition More and more are patients ready to enter the general wards of the voluntary hospitals, and pay perhaps five guineas a week, rather than go into a nursing home at ten or fifteen guineas a week and in addition find one hundred and twenty or more guineas for the surgeon, anæsthetist and radiologist To the public these fees seem grossly out of proportion To the consultant, particularly the young consultant, they are a necessity The overhead expenses of his rooms in Harley Street, his secretary, his continuous telephone service, his conveniently accessible flat, not to mention his obligatorily magnificent car, are enormous He has no pension to look forward to, so he burdens himself with life insurances And he is lucky if in his first few years he makes ends meet One cannot blame him if, to earn an odd 3 guineas, he is willing to see in his consulting-rooms patients who want to get into his hospital beds without going on the crowded out-patient waiting list

3 The London specialist population is *grossly overcrowded* This in its turn is due in part to the large number of voluntary general and special hospitals in London, all needing honorary staffs It is also due to certain economic phenomena which, though more familiar in commerce and industry, are also operative where medicine is practised as a trade The so-called law of supply and demand states that demand creates supply In due course, supply becomes excessive and the inefficient agents of supply go to the wall This is the stage which has been reached in Harley Street Its gilt-paved streets have become crowded with consultoids, specialists in strange and wonderful therapies, and learned looking foreign gentlemen, among whom the true consultants can be identified with difficulty Unfortunately medicine is not a commodity the quality of which can readily be judged by the general public A high-sounding name or a beautifully equipped consulting-room may ensure the survival of the second rate, while the first-rate man, perhaps caring less for the public taste, goes under The era of unrestrained competition is succeeded in commerce and industry by the formation of groups, combines and monopolies—the process of rationalisation In London, fellows of the Royal College of Physicians are specifically forbidden to form groups, teams or partnerships, and apart from this the individualistic outlook of the consultants has prevented anything analogous to the Mayo Clinic springing up

Most consultants and specialists do not demand £20,000 a year before they are willing to work They do ask to be able to develop their science and practise their art in reasonable financial security, to keep their families in comfort and educate their children, and to look forward to a comfortable old age. How are these reasonable demands to be obtained?

VOLUNTARY AND MUNICIPAL HOSPITALS

Once again, we must think first of the hospitals as they were before the war The voluntary and municipal hospitals formed two distinct and contrasting groups Three years ago the situation in England and Wales was as follows

Institutions	Number	Beds
Voluntary Hospitals (of which about 20 per cent were special hospitals)	910	74,636
Municipal Hospitals (including public assistance sick wards)	577	129,113
Local Authority Institutions for Tuberculosis, Maternity, and Fevers	1218	58,174

Although the municipal hospitals had so many more beds their turn-over of inpatients (751,277) was under two-thirds that of the voluntary hospitals (1,145,433) Further, the volume of outpatient work done by the voluntary hospitals was enormously greater

The annual *cost* of the British hospital services was estimated at about £60,000,000, of which about a third was spent by the voluntary hospitals Taking the voluntary hospitals as a mass income was just covering expenditure though approximately a quarter of them showed a deficit Voluntary contributions were steadily falling, while the yield from contributory schemes and patients' contributions was steadily increasing The collection of numerous small local contributions is an expensive process and if contributory schemes could have been worked on a national basis great savings would have accrued During and after the war voluntary contributions are likely to fall still further, so that unless contributory schemes are greatly extended the voluntary hospitals cannot look forward to a roseate financial future The municipal hospitals met most of their cost out of rates and block grant. Only about 10 per cent was covered by patients' contributions Rates are a notoriously ill-adjusted form of taxation The municipal needs of the poor areas are greater than those of the rich, so that rates fall heaviest on those least able to bear them. As a result, rich counties like Middlesex and Surrey have developed a fine municipal hospital service while poor counties have all too often had to be content with converted public-assistance institutions. Once again, the case is strong for hospital finance on a national basis

STAFF CONTRASTS

Perhaps the biggest contrast between the voluntary and municipal hospitals is in their personnel The average municipal hospital has a medical hierarchy topped by an all-powerful medical superintendent paid about £1500 a year Beneath him are junior and senior assistant medical officers receiving salaries between £350 and £600 a year. Chances of promotion are relatively poor as the number of medical superintendents is much less than the number of juniors The voluntary hospital has on the other hand some 10 to 40 honorary heads of firms or departments, all of whom are equal, and who together or in selection form the medical committee which indirectly (through the lay board) controls not only the entire medical policy of the hospital but also medical staff appointments. Why does a municipal hospital of say 500 beds need a staff of only 5 or 6, while a similar voluntary hospital needs some 20 seniors and 30 juniors? First, because all the seniors and some of the juniors at the voluntary hospital are part-time. Secondly, because of the enormous volume of outpatient work and the quicker inpatient turnover in the voluntary hospital Thirdly, because the standard of work in the voluntary hospital is generally higher The reason for this higher standard is first the understaffing in the municipal hospitals, and secondly the healthy spirit of criticism engendered by the system of firms in voluntary hospitals and also by six-monthly changes of young and usually enthusiastic house-officers

The municipal staff system is analogous to the Continental system, in which the head of the entire medical or surgical side of a hospital is an all-powerful professor (usually part-time) under whom are large numbers of whole-time assistants. Though co-ordination under a single head is theoretically pleasing, in practice it has many disadvantages A man becomes superintendent or professor at the age of forty or forty-five; for the next fifteen or twenty years he is undisputed monarch of his kingdom, freed from the stimulating criticism of his colleagues and inevitably the subject of a certain amount of toadying He is indeed a great man if he can retain his clinical enthusiasm and a sense of proportion and avoid an autocratic outlook or an equally dangerous easy-going complacency A system which legislates only for great men is unsound By contrast, the voluntary system has in each hospital perhaps four honorary physicians and four honorary surgeons (besides the honorary heads of special departments) Each of these chiefs is the head of his own group or firm but no-one dominates and each is subjected to the friendly rivalry and criticism of colleagues This multiplicity of openings for seniors has enabled the voluntary hospitals to use and produce a multitude of talented men who have developed individual lines of work and thought The rivalry has kept them fresh and up to date, while the position of command and responsibility arrived at in early middle age has utilised emotions which might otherwise have found outlets only in disgruntled carping at superiors Further the disastrous effect of unsatisfactory appointments has been minimised The firm system exploits to the full the Englishman's love of liberty and independence.

Admittedly the medical committee of a voluntary hospital is not perfect—occasionally its decisions are influenced by self-interest—but it does represent a remarkable pooling of professional knowledge, far more capable of taking an all-round view of medical problems than any medical superintendent If members of medical committees were freed from the monetary claims of private practice their decisions would probably be as wise and unbiased as anything human can be

In most municipal hospitals lay administration is in the hands of the medical superintendent Occasionally he is a born administrator, never is he a trained administrator If his interests are in medicine, administration suffers and vice versa In voluntary hospitals laymen, often specially trained look after lay matters Hospital administration is a special profession and it is in the interests of doctors and hospitals alike that it should be in the hands of specialists

THE EMERGENCY HOSPITAL SERVICE

The Emergency Hospital Service has been created suddenly to meet a special need—the provision of 290,000 hospital beds for civilian air-raid casualties To provide these it has utilised, but not in most cases taken over, existing voluntary and municipal hospitals. It has also "upgraded" a number of mental hospitals and public-assistance institutions and has built or is building a number of new hut hospitals to provide nearly 40,000 beds The "utilised" hospitals retain their own governing and administrative staffs, but the medical staffs have for the most part become whole or part-time employees of the Ministry of Health Further the Ministry is paying the voluntary hospitals for the beds it is proposing to use. The central government thus enters the field for the first time as a hospital owning and hospital-supporting authority. In all areas there are now (or will soon be) four types of hospital—voluntary, municipal, upgraded joint municipal and E.H.S., and pure E.H.S. hospitals.

The administration of this scheme has been, and is bound to be, extremely difficult. To cope with it, two new types of post have been created in each area—group officers and regional hospital officers. The former are professionally eminent medical men and are primarily concerned with medical organisation. The latter are administrators. Where the authority of each begins and ends is not absolutely clear and most of the criticisms of the service have centred round the difficulties these officers have experienced in giving prompt and accurate decisions. The group officers, as practical men untrained in government ways, have usually answered when in doubt by an honest confession of ignorance. The regional hospital officers have on the whole preferred to refer unsolved problems to higher members of the ministerial hierarchy. If a more acute emergency had arisen probably more local autonomy would have quickly developed. As it is, doctors with too much time on their hands have inevitably examined the structure for flaws and have found not a few—yet none which suggest that the system would not work at a pinch.

In its medical staff organisation, the E.H.S. has largely followed the new municipal rather than the old voluntary system. At the head of each hospital *is a medical superintendent* receiving from £900 to £1200 a year according to the size of his hospital. Such a post is both necessary and desirable where a hospital has to be built up *de novo* or an existing hospital radically changed in function—though it *is just possible that a skilled lay* administrator would have been equally or even more effective. In large hospitals, officers are placed in charge of the entire medical or surgical divisions with salaries of £950. Other medical and surgical *specialists and specialists* in charge of departments receive £800, while medical officers get £550 and house officers £350. Recent modifications enable certain of the staff to become part time on greatly reduced salaries. *The appointments* are temporary and do not carry pension schemes. A large number of eminent consultants have accepted service under the scheme, sacrificing incomes much greater than those they now receive while still bearing the cost of expensive consulting-rooms, town flats or houses, and often enormous life insurance premiums.

There are, however, three aspects of the E.H.S. which call for unqualified praise. It has long been realised that England stands in need of some hospital organisation with regional planning. Regionalisation was one of the main recommendations of the Sankey Commission on Voluntary Hospitals set up by the British Hospitals Association. Since its report was published in 1937 the British Hospitals Association has done all in its power to promote regional schemes and this year it published a map showing the regions which have been provisionally agreed upon (fig. 1). This divides England into 14 areas each of which is a geographically workable hospital unit. These large areas inevitably cover many local authorities' domains, but the arguments for so doing are fully set out in the Sankey report and are extremely cogent. The Ministry, although no doubt conversant with the British Hospital Association areas, decided it would be wiser to divide England and Wales into 11 areas or regions (fig. 2). It will be seen that Hitler and the Ministry between them have accomplished in a few months what might have taken the British Hospitals Association twenty years to bring about. *A word is perhaps needed to* explain regionalisation. The British Hospitals Association intended that each region should provide a complete hospital service for all its inhabitants and that by coördination overlapping, duplication and inefficient small units should be avoided. The full case for regionalisation, and it is an unanswerable one, is set out in the Sankey Report.

The second facet of the E.H.S. which one hopes has come to stay is decentralisation. For some years far-sighted hospital reformers have been advocating country hospitals with town outpatient departments and small emergency blocks. In favour of this plan were the manifest benefits of country air and surroundings to patients, nurses, staff and students, and the limitless size and low *price of sites* (enabling buildings to be planned on entirely utilitarian principles rather than by making the best of a bad job). Against decentralisation it was urged that *hospitals in the heart of big cities* had a greater appeal value to charitable citizens, that honorary staff would not be prepared to journey out into the country two or three times a week, that students would be unable to find lodgings, and that relatives of patients would be unable to visit them freely. It was further suggested that the familiar hospital "round the corner" had a certain emotional significance to patients in the neighbourhood. This and the question of visiting were rapidly losing their point as voluntary hospital *patients were drawn from further* and further afield. But most powerful of all was a natural conservatism. To all who worked there "the hospital" was something more than bricks and mortar. To abandon it to the housebreaker was unthinkable. Now all this is changed. *The danger of* air raids has forced the Ministry of Health to move the hospitals out into the country, leaving behind only small casualty clearing hospitals. The danger *and therefore the decentralisation must persist as long* as the war lasts. But when the war is over, what then? Can we expect to return to an era of perpetual peace? If not, the need for decentralisation will remain. The thought of building country hospitals whenever a national emergency arises is too ludicrous to contemplate—especially when they are a peace-time need as well as a war-time necessity. Decentralisation seems then to have come to stay.

The third blessing which the E.H.S. has brought is a demonstration that transport of the sick from town into country is a practical proposition. The Ministry's now famous fleet of Green Line buses is standing ready, and in peace time it could function no doubt even more efficiently than it could in war.

Building for War and Peace

We are faced with a regionalised decentralised *hospital service* at all events *till the end of the war*. Both are permanent strategic needs as long as there is any danger of war. Further, both are peace-time desirabilities. Now is therefore the time to build up *a permanent National Hospital* Service which will function with a maximum of efficiency in both war and peace. Such a service should use the best of all the existing systems and weld them into a coherent whole. The things which are worth saving are:—

1. From the E.H.S.—Regionalisation and decentralisation.

2. From the voluntary hospitals :—
    (a) The system of firms.
    (b) Medical control by a medical committee rather than a superintendent (except, possibly, in emergency).
    (c) Lay administration by a trained layman.
3. From Harley Street :—The personnel in danger of bankruptcy.

There are certain corollaries which follow from decentralisation, even as decentralisation inevitably follows from air-raid dangers Honorary visiting staff become a geographical and probably also a financial impossibility Therefore a paid part or whole-time senior medical staff is a necessity. It is the experience of most people that the paid part-time worker is not a success. In the first place, the pay is almost always far too little for the hours of work expected, a proposition well exemplified by the Ministry's new offer to members of the E H S (4 days a week on duty on ½ pay) So private practice after a time becomes more important than public service and a dichotomy of loyalties springs up On the other hand, the medical or surgical firm run by whole-time staff has been shown to be both practical and successful by the London and provincial professorial units The prejudice against the units is steadily getting less, and their popularity with the younger medical men is well shown by the wealth of applications from consultants when posts on them are advertised The units point the way to a satisfactory whole-time service

THE HOSPITAL GROUP OF THE FUTURE

In fig. 3 is shown the organisation of a war-time "hospital group." In the towns served are the various casualty clearing hospitals—in essence outpatient departments with a few emergency beds attached From these run big ambulances to the advanced base hospital in a safe country district, where all the major treatment is done. Finally, convalescent cases are evacuated, again by ambulance, to the base hospital still more remote When casualties occur in large numbers, the normal slow circulation in the group is speeded up and semi convalescent cases go through to the base hospital There are now one or more of these hospital groups in each region, or in the case of London in each sector On the right of fig. 3 is shown how the war-time hospital group could and should function in peace time

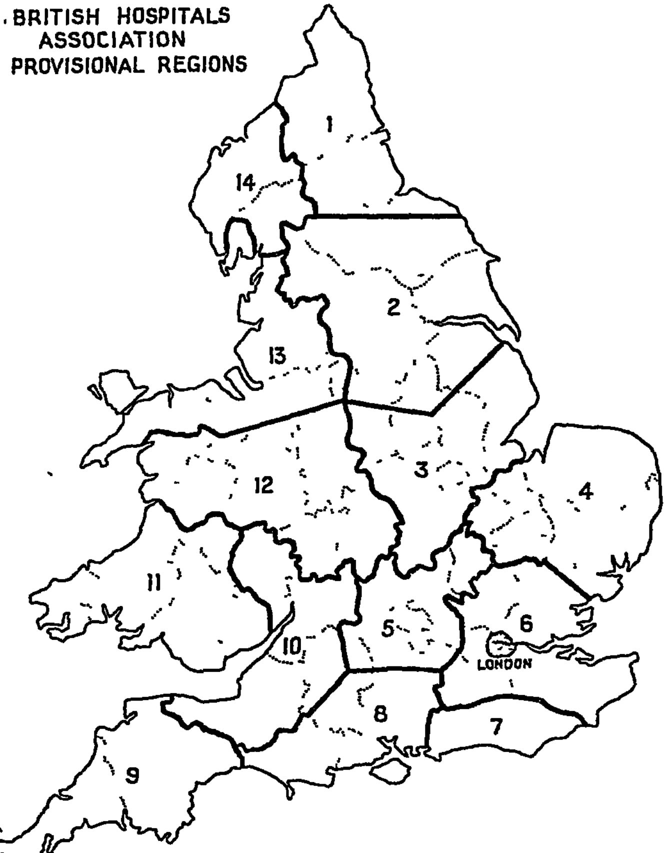


FIG. 1

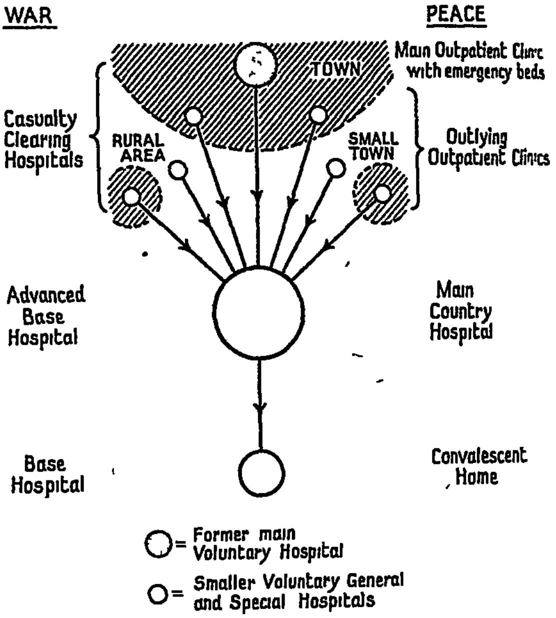

WAR
PEACE
TOWN
Main Outpatient Clinic with emergency beds
Casualty Clearing Hospitals
RURAL AREA
SMALL TOWN
Outlying Outpatient Clinics
Advanced Base Hospital
Main Country Hospital
Base Hospital
Convalescent Home
= Former main Voluntary Hospital
= Smaller Voluntary General and Special Hospitals

FIG. 3—A Hospital Group in war or peace The cross-hatched areas are urban, while the unshaded areas are rural.

If one imagines the peace-time organisation of the hospital group on a basis of firms, the main country hospital (of, say, 1000 beds) might be divided thus :—

	Total beds
3 medical firms of 80 beds each	240
1 children's firm of 80 beds	80
4 surgical firms of 80 beds each	320
1 orthopædic firm of 40 beds	40
1 midwifery firm of 60 beds	120
1 gynæcological firm of 60 beds	
1 ear, nose and throat firm of 80 beds	80
1 ophthalmic firm of 40 beds	120
1 skin firm of 40 beds ..	
1 psychiatric firm of 40 beds ..	
	1000

The staff of each of the larger firms might be :—

	Salary :	
Director	£1200–£2000	(increasing with seniority and carrying pension)
Deputy-director	£600–£1000	
Registrar	£400–£550	(for 3 years)
Two house-officers	£150 each	(living in, for 1 year)

Assuming that on the smaller firms there was no deputy-director, and that the salary of the average director was £1600 and of the average deputy £800 the wages bill for medical officers would be a little over £40,000 a year, excluding those not in charge of beds (pathologists, radiologists, physiotherapists and so on) Such a sum may sound excessive but in reality it is far from being so A country hospital with its 1000 beds, together with perhaps 200 beds in its convalescent home, would provide a consultant and specialist service for a very large population It is generally said that 2 hospital beds are needed per 1000 of population, so £40,000–£50,000 in medical salaries is scarcely excessive for 600,000 people

Five whole time doctors to 80 beds is, by municipal standards, extravagant But this is not really so, for this staff would have to see outpatients, both at the main outpatient centre and at the outlying clinics One pictures the director with an H P visiting the main outpatient centre twice a week, once for consultations and once for follow ups, while the deputy director and registrar with the other H P would do similar work at the outlying clinics (Such a system of outlying clinics has been successfully run for some years from the Maudsley Hospital) Then once a week perhaps, the director or his deputy would go out to the convalescent home, so that rehabilitation could become a scientifically guided process rather that an affair of chance At the main outpatient centre small radiological and pathological departments would be needed, as well as a few emergency beds, a theatre and an R S O An efficient almoner and clerical staff at all outpatient clinics would have no difficulty in working an appointment system

In teaching hospital groups—and no doubt most would teach—one chief on each side might undertake professional duties Two hospital buses plying between the main outpatient centre and the country hospital could transport town dwelling students, with staff and patients' visitors—much as the B B C bus used before the war to ply between Portland Place and Alexandra Palace

WHAT OF THE PRIVATE PATIENT?

No doubt among the very rich there will always be those who demand medical treatment at exorbitant prices For them there will still be the private consultant and the private nursing home But the great middle and upper middle classes ask for and have a right to receive specialist and hospital treatment within their means This can easily be provided in the hospital group and can act as a source of revenue Attached to the main outpatient centres it would be feasible to have private consulting clinics Here private patients would be seen first by an almoner who would assess their ability to pay and charge them accordingly They would then pass to the appropriate medical or surgical director (named by their private doctor) who would be on duty one day a week In assessing the need for special investigations or inpatient treatment the consultant would have to consider only medical considerations and not his patient's pocket A private block at the country hospital would give privacy to those who wished it, though money could not buy a higher standard of treatment For those rare occasions when a specialist is needed in the home, a system of duty weeks for outside calls among the chiefs could easily be arranged.

INTERNAL ORGANISATION OF THE HOSPITAL GROUP

The case for a medical committee of directors of firms has already been sufficiently stressed The medical committee should control all medical affairs, including staff and house-appointments, though their decisions should need formal approval by the hospital executive committee, as in the past In a war, one of the medical committee could be elected medical superintendent for the duration

Non medical affairs—lay staff food, stores and maintenance—should be in the hands of a trained lay administrator He should be responsible to the hospital executive committee The same applies to the nursing section of the hospital under the matron, the almoners under the head almoner the dispensers under the hospital dispenser, and the masseurs under the head of the massage department

The hospital executive committee should be, as at present, composed of laymen, nominated or elected,

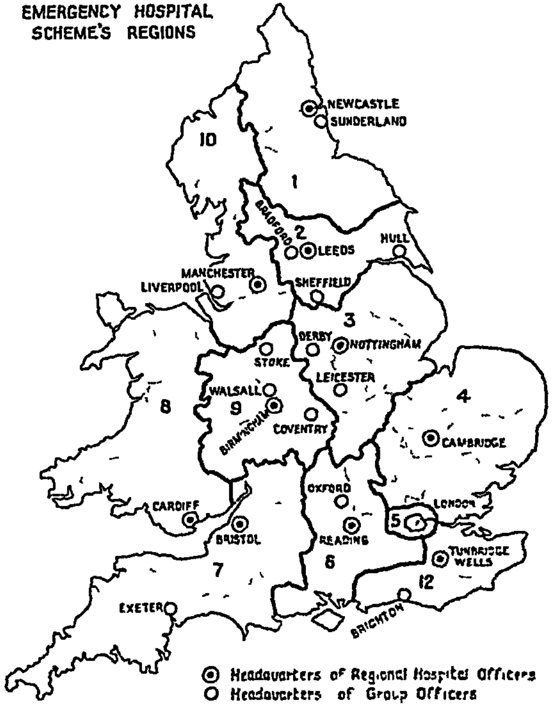


Fig 2—The six major divisions were shown in a map (*Lancet*, 1939, 1, [illegible]) The remaining details were taken from an article in *Public Health*, Oct 1939, p 21 At all headquarters of Regional Hospital Officers except Tunbridge Wells there are also Group Officers.

Regions—1 Northern 2, North-eastern 3 North Midlands 4 Eastern 5, London 6 Southern, 7 South western 8, Wales 9 Midlands 10 North western 12 South-eastern and at least two members of the medical committee. It should meet not more than once a month, and the hospital lay administrator should be its secretary.

Such an internal organisation is not new. It is that well tried and found satisfactory by most voluntary hospitals Disadvantages it has, but they are perhaps less than those of any alternative so far tried. It gives a maximum of local autonomy to each department, and in that lies its greatest safeguard against red tape

GENERAL ORGANISATION

Assuming such a scheme is not only desirable but inevitable, how can it be run, who is to run it, and who is to pay for it ? The country is already divided into regions (or sectors) in each of which hospital groups already exist. These should certainly remain But over and above the group and regional organisation, some national organisation is clearly necessary But it must guide with the gentlest of reins It must allow a maximum of local autonomy Otherwise initiative, originality and efficiency will be stifled in bureaucracy.

In each region, an administrative officer is necessary to coordinate the hospital groups, and to make sure that the whole area is adequately covered. He might well be a layman trained in hospital administration rather than a converted doctor. For the country as a whole, a director-general of hospital services, guiding the regional officers, would be needed. Mass purchasing of basic hospital supplies might be in his hands, and he could buy them more cheaply than could each hospital group or even each region But detailed individual expenditure should be controlled by the hospital administrative committees In fact, the good director-general would be known rather by his influence in absence than by his personal achievements

To whom should the director-general be responsible ? Who, in a word, should really be vested with the ownership of the national hospital service ? Not the Ministry of Health Admirable though the work of this department has been, it has not had much experience of the administration of therapeutic medicine. Like so many government departments, it has become set in its ways Members of its staff are inevitably reluctant to take responsibility Not the local authorities They have in the past few years done admirable work in building up a second general hospital service But their boundaries are often inconvenient for large-scale organisation, and the poorest of them have the greatest needs

The only satisfactory solution is a statutory National Hospital Corporation, somewhat similar to the British Broadcasting Corporation to take over all the hospitals, whether voluntary, municipal or E.H S Such a body should be granted its charter by Parliament on a five-year basis only. Thus every five years the corporation would have to submit to a searching examination by Parliament—an examination from which the ordinary Government departments are exempt This would be the greatest possible safeguard against the development of red tape The control of the corporation would be vested in a board of governors, of whom a third might be members of the medical profession, the presidents of the Royal Colleges being ex-officio members.

FINANCE

The National Hospital Corporation would finance itself from a variety of sources. It would take over voluntary hospital endowments From the sale of redundant and valuable metropolitan sites it would obtain some capital towards its necessarily vast building operations But for most of its capital expenditure a Government loan would probably be necessary As at present, all patients would be asked to contribute according to their means And the fees of private patients would be a substantial asset The balance would have to be made up either by direct taxation or compulsory graded hospital insurance If insurance was the method chosen, the justification for direct contributions by patients would vanish One source of finance is definitely contra-indicated, and that is any form of local rating, for rates fall heaviest on those least able to bear them

THE GENERAL PRACTITIONER

Of all the elements in our present system of therapeutic medicine, the general practitioner is the most efficient He is still able to earn a good living, and as a result can give of his best to his patients How would a national hospital service affect him ? He might lose a little cottage-hospital surgery, otherwise he would gain immeasurably He need only send a patient to his local outlying outpatient clinic to obtain a first-rate opinion for his private patients, the fear of excessive Harley Street fees would vanish and he would never need to hesitate to get for them the best advice

One additional duty the general practitioner must sooner or later undertake if any hospital outpatient service is to function efficiently The panel must be extended to the dependants of insured patients Unless this is done, it would be very hard to restrict the work of outpatient departments to their proper function—consultations, specialist advice and treatment The uninsured sick poor who cannot afford doctor's fees turn inevitably to the hospital

Conclusions

1 Before the war, for many reasons, consulting medicine was dying, the British Hospitals Association was urging regionalisation, and a few far-sighted reformers looked forward to decentralisation.

2. The war and the danger of aerial bombardment has forced the Ministry of Health to introduce suddenly both regionalisation and decentralisation, together with a large measure of central control of both voluntary and municipal hospitals

3 When war is over, if there is any danger of a future war, regionalisation and decentralisation must remain, apart altogether from their desirability as permanent peace-time measures

4. Decentralisation destroys the last hopes of the honorary consultants and they must become part- or whole-time paid hospital doctors There is everything to be said for the whole-time and little for the part-time basis

5. The most valuable features of the voluntary hospital, by contrast with the municipal or Continental state hospital, is the presence of a series of independent firms, each with its own chief; these chiefs together form a medical committee which does the work of a medical superintendent and does it far more effectively. Lay administration is in the hands of a trained lay administrator. These features should at all costs be retained in the new hospital service though in war-time it is justifiable for one of the medical committee to be elected medical superintendent for the duration.

6 The war-time arrangement of metropolitan casualty-clearing hospitals, an advanced base hospital and a base hospital is also an ideal peace-time hospital

group, which could be worked simply and efficiently by a large whole-time staff. *So far from being costly* to the community it might well in the long run cost less than our present "rob the rich to pay the poor" consulting system.

7. While the hospital groups should retain as much local autonomy as possible, some general national organisation is essential. This should not be a part of the Ministry of Health, nor should it be connected with the local authorities. The best solution would be a statutory National Hospital Corporation with a charter subject to a five-yearly review by Parliament. This corporation should be controlled by a board of governors of whom at least a third should be medical men.

9. While *the corporation* would take *over the sites* and investments of the voluntary hospitals it would need a Government loan to finance initial capital expenditure. Current expenditure could be met either by patients' contributions plus national taxation, or by compulsory national hospital insurance.

10. If the consultant is to be rescued from penury, and our hospital system from chaos or direct governmental control, a scheme such as this is essential. It retains all that is best in the voluntary system and the emergency hospital scheme while offering to both private and poor patients an ideal hospital therapeutic service equally workable in peace or war.

MEDICINE AND THE LAW

The Nature of Negligence

THE degrees of negligence known to the law are one of the law's mysteries. It needed all the expository felicity of Lord Hewart to distinguish civil from criminal negligence in Rex *v.* Bateman. The amount of carelessness which might make a medical practitioner liable to pay damages to his patients might not be enough to justify a red judge in sending him to prison. If criminal negligence be put on one side, civil negligence has esoteric elements of its own. Judges of an older generation, for instance, used sometimes to speak of gross negligence and ordinary negligence until Baron Rolfe confounded this classification by declaring, nearly a century ago, that gross negligence is merely ordinary negligence with a vituperative epithet.

These reflections are called forth by a judgment delivered last week in the Manchester county court where it was held that sufficient negligence had been established to defeat a claim for fees for professional services, although the judge disclaimed any inference *that the negligence would have been sufficient to* justify an action for damages. According to the report of the judgment in the *Manchester Guardian*, a woman had gone to the premises of the Co-operative Dental Association for the extraction of an aching tooth. *She was advised to have all her teeth extracted.* At the time of the operation no one was aware that her condition was tuberculous. The judge held that symptoms appeared which made it negligent on the part of the dental surgeon to complete the extraction. After the operation the anæsthetist had suggested to *the dentist that the* patient's friends should be warned to take her home and obtain medical treatment for her at once. Nine months after the extractions she died of pulmonary tuberculosis. The judge considered that the dentist had been negligent in providing dentures at a time when the patient's mouth was not fit to receive them. The proceedings arose on a claim against the husband for fees for work done and services rendered. He resisted the claim and alleged negligence. The court decided in his favour with *costs.*

If the negligence was sufficient for a defendant's purpose (to defeat a claim) but not definitely sufficient for a plaintiff's purpose (to obtain an award of damages), are we to infer that there are different standards of negligence according to the position of the parties? The answer presumably is in the affirmative inasmuch as the burden is on the plaintiff to establish his case. There were other considerations here. A plaintiff claiming damages for negligence from a doctor or dentist must not only prove the negligence but must also prove that there was damage in consequence of that negligence. It was apparently not suggested that the patient's illness and ultimate *death were due to the extraction of her teeth.* Moreover, courts are always scrupulously careful to confine their decisions to the specific issue immediately before them. In the Manchester case the defendant's allegation of negligence was not linked with any counterclaim for damages for the alleged negligence. The judge therefore was anxious to make it clear that he was not deciding an issue which had not been raised before him. Be that as it may, legal conceptions of negligence are elusive because each case depends upon its own facts. "There is," observed Baron Bramwell in Degg *v.* Midland Railway (1857), "no absolute or intrinsic negligence; it is always relative to some circumstances of time, place or person." To the same effect is Lord Justice Bowen's dictum in Thomas *v.* Chartermaine in 1887: "the idea of negligence and duty are strictly correlative, and there is no such thing as negligence in the abstract; negligence is simply the neglect of some care which we are bound by law *to exercise towards somebody.*"

There is nevertheless one broad classification of duty which affects the medical profession. A man is acting either in the capacity of an ordinary citizen or he has undertaken special work. In the former case he *must exercise such care as may be expected of the* ordinary unskilled intelligent citizen; in the latter, he must bring to bear upon his work the average skill of a person trained to that special business. The law does not require the exercise of the highest order of professional skill unless the party has held himself out as possessing it. Care is not the same thing as skill. In claims against medical defendants for alleged negligence, the defendant is usually accused of having failed in both care and skill. Care is much the same as diligence. The degree of diligence required will be proportioned to the nature of the case. In some cases nothing short of the highest degree of diligence will suffice.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

SURGEONS LOOK AHEAD

AT Aberdeen University Mr W. C. Wilson, the newly elected professor of surgery, gave his inaugural address on surgery's contribution to medical science. He said that at a time when physical violence is a *constant dread to everyone it is fortunate that modern* surgery is so well fitted to deal with injuries. There is, however, no room for complacency, and it should be remembered that most of the victories of medical science have been won only by international cooperation. There have been, he thought, few outstanding advances in surgery in the last twenty years. Compared with pharmacology, chemical medicine and bacteriology, surgery has progressed mainly in technique. There are several good reasons for this

Surgery has many problems which hold little interest for the other branches of medicine. Too often surgical research is left in the hands of the practising surgeon who has neither the time, training nor scientific capacity for such work. The mental habits of the consultant impose a handicap on research. The future of surgery, he believed, lies in the pursuit of experimental work by surgeons trained in research The chief duties of a professor of surgery are the advancement of knowledge by research and the dissemination of knowledge by teaching. Debarred from research the teacher of surgery merely becomes a purveyor of second-hand information Professor Wilson appealed to students to make a career of research There are only two qualifications for the research worker—the urge to do original work and the ability to work hard. A brilliant academic career is not an essential and luck is often more important than brains.

Speaking for the first time from the chair of surgery at Glasgow Prof C. F W. Illingworth discussed the organisation of surgical services. The first essential is closer cooperation between the hospitals in a region, voluntary and municipal, and between their staffs. It would be well to establish a unified system for the admission and transfer of patients and for the payment of the medical staffs, without waiting for the dropping of the first bomb which would immediately put it into effect He wanted students to live in Glasgow hospitals. He had already had experience of a scheme whereby final-year students were given the opportunity of living in for three months and becoming members of a medical, gynæcological or surgical team He had been amazed to see after how brief a period a student acquired clinical acumen

HUTTED HOSPITALS AND FLYING SQUADS

Ordinary sick persons as well as civilian war casualties will be admitted to the new hospitals and hospital annexes that are being built in different parts of Scotland under the Emergency Hospital Scheme. Such civilian sick will be taken in if they are in urgent need of hospital treatment and cannot obtain it elsewhere In fact this arrangement will greatly increase the hospital facilities which are available outside the cities Five new hutted hospitals of 600 beds each are being built in Ayrshire, Lanarkshire, Stirlingshire, Angus and Perthshire, while annexes are also being built to existing hospitals A new hospital of 200 beds will be ready at Dunfermline in the next few weeks About a thousand beds are being provided by the conversion of three large hotels, while Peel House, in Selkirkshire, handed over by Lord Craigmyle, will provide 40 beds with an additional 400 in annexes Altogether there will be a total of such additional beds provided of 4640.

Arrangements are also being made for the provision of "flying squads" of doctors, nurses and health visitors who can be sent from Edinburgh, Glasgow and Dundee when a health emergency arises in the areas to which children and mothers from these cities have been evacuated. The flying squad will be despatched when circumstances arise which the medical and nursing resources of the receiving area are unable to cope with and they will remain in the receiving area until the situation has been brought under control. It is realised that the health services of receiving areas cannot be expected to serve a population so greatly increased without additional personnel. Local authorities of receiving areas who find difficulty in expanding their services to meet the new needs will, therefore, communicate with the sending authority and indicate the extent to which additional staff is required

SWITZERLAND

(FROM OUR OWN CORRESPONDENT)

THE SWISS NATIONAL EXHIBITION

The exhibition at Zurich which opened at the beginning of May will close its doors on Oct 31. Despite the troubled European outlook in the summer and the outbreak of hostilities in the autumn, practically every Swiss set foot in it Foreign visitors were relatively few, and this is the more regrettable as little is known abroad of the share taken by Switzerland in European civilisation The exhibition was meant to correct this impression. In the gallery of great Swiss were not a few who have contributed to the advancement of medicine and natural sciences There we find Paracelsus (1493–1541) born in Einsiedeln, the great reformer and iconoclast, Felix Plater (1536–1614) to whom we owe the first inkling of the importance of the thymus in the bodily economy; Caspar Bauthinus (1560–1624) whose name is attached to the ileocæcal valve; T. C Brunner (1633–1727) who discovered the glands in the stomach, Wilhelm His the elder, anatomist, and his son who discovered the bundle in the heart; Th Kocher (1841–1917) the Bernese surgeon whose name is attached to goitre and thyroid gland Mathematics owe a debt to the several Bernoullis and to Euler, botany to A. P. de Candolle, natural science of the eighteenth century to A. von Haller, physician, naturalist and poet Physiognomy will always be linked with the name of Lavater, just as education with Rousseau, Pestalozzi and Fellenberg. Not to speak of the leaders of the Reformation—Zwingli, Calvin and Bullinger

A special pavilion was devoted to prophylaxis and healing. The Institute of Anatomy contributed some fine preparations of human organs. Physiology was chiefly notable for the work of the Alpine observation station on the Jungfraujoch. Goitre, cretinism, myxœdema were naturally conspicuous in a Swiss exhibition. The model hospital proved a great attraction. Medical research was represented by several university institutes, emphasis being laid on the coöperation of practical medicine, biology, chemistry and pharmaceutics The big firms of the highly developed Swiss pharmaceutical industry—Ciba-Basle, Sandoz-Basle, Hoffmann La Rocha-Basle and Wander-Berne—had a common pavilion in which the importance of the scientific work done there was shown in graphs. Of every 1000 preparations which are produced only 4 find their way to the public Research work accounts for 18 per cent of the cost of production. As an example, the synthesis and action of Coramine was shown in detail. Sandoz gave in a schematic illustration the complicated isolation process of secale cornutum

---

Charterhouse Rheumatism Clinic —Lady Halifax is appealing for funds for this clinic, so that its work for civilians may be carried on and further that it may if necessary be ready to treat members of the fighting forces

Doctors of Uruguay on the War —The Medical Syndicate of Uruguay has issued the following statement: In view of the events which are taking place in Europe our medical syndicate once more wishes to record its repudiation of wars of conquest, which are the brutal recourse to which Governments based on force, such as the Nazi and Communist regimes, have turned in their ambition for territorial expansion Our syndicate expresses its spiritual solidarity with the democratic countries which resist the use of force as a means of subjugating weaker nations

THE NEW ENDOCRINOLOGY

A series of articles by Prof E C Dodds F R C P, *director of the Courtauld institute of biochemistry at the Middlesex Hospital, based on lectures delivered at the British Postgraduate Medical School*

IV—THE FEMALE SEX HORMONE

The fact that removal of the ovaries results in complete cessation of the sexual cycle and postponement of puberty has been common knowledge for a very long time Nevertheless the mode of action of the ovaries was not understood until the study of endocrinology was firmly established

As in the case of the male hormone, the earlier workers were handicapped by the lack of a suitable test object They had only crude methods of producing rutting out of season and of accelerating the development of immature prepubertal animals, and little progress could be made until the classical work of Stockard and Papanicolaou showed that the sexual cycle of the rodent is attended with definite changes in the vagina At the height of œstrus, it was found, the rat's vagina shows cornification of the epithelium which can be very easily observed merely by taking a vaginal smear During the resting stage, or di œstrus the smear shows only leucocytes, whereas at the height of œstrus there are non nucleated keratinised plaques but no leucocytes at all Removal of the ovaries induces a permanent state of di œstrus

This work led Allen and Doisy to use the ovaries of rats and mice for testing a series of ovarian hormones In 1924 they published an account of their work showing that an alcoholic extract of ovaries was capable of inducing œstrus changes in the ovaries of a mouse, and for the first time they succeeded in producing a stable œstrus producing ovarian hormone After intensive chemical investigation the substance was concentrated, and proved to contain only carbon, hydrogen and oxygen

Despite the labours of chemists and biochemists, purification could not be achieved owing to the complex nature of the fatty substances extracted from the ovaries The materials, however, were found mainly in the follicular fluid and this was used as a source of preparation No real progress in identifying the substance was made until a new source was discovered by the German workers Aschheim and Zondek, who demonstrated in 1927 that the urine of pregnancy contains large quantities of the hormone, and that the extraction of a concentrate by benzene results in an oily substance of much greater potency than that obtainable from the ovary Large scale collection of the urine of pregnancy from cattle, and in particular from mares provided adequate material for really detailed chemical study Independently and almost simultaneously E A Doisy in America and A Butenandt in Germany announced the crystallisation of an œstrogenic substance from the urine of pregnant mares while G F Marrian in England obtained a crystalline substance from the human urine of pregnancy which differed in structure from that obtained by the other two workers By the application of the processes of organic chemistry, and mainly through the work of Butenandt, the actual constitution of these substances was proved That obtained by Marrian is now known as œstriol and that of Doisy and Butenandt is called œstrone They both contain the cyclopentenophenanthrene ring system, and their *formula is shown in figs* 1 and 2

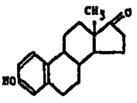


Fig 1—Œstrone

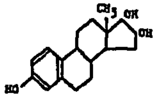


Fig 2—Œstriol

A large number of œstrogenic substances have now been obtained from the urine of pregnancy One of the most important factors in making this commercially possible was the introduction of Girard's reagent A Girard succeeded in preparing a reagent capable of reacting on organic ketones and rendering them water soluble By the use of this technique the ketonic fraction of the pregnant mares' urine can be separated from the non ketonic, and in the case of this starting material the whole of the activity appears to be in the ketonic fraction Girard also prepared from this series a number of substances of differing constitution such as equilene and equilenin (figs 3 and 4)

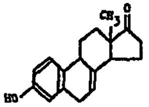


Fig 3—Equilene

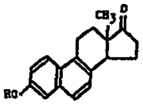


Fig 4—Equilenin

A very curious discovery was made by F Schwenk and F Hildebrandt, who showed that during the hydrogenation of œstrone the hydroxy ketone present in the mare's urine of pregnancy takes up two atoms of hydrogen, and the ketonic group at the 17 carbon atom becomes reduced to a secondary alcohol The resulting substance, œstradiol, is some five times more active than the corresponding ketone

Considerably later Doisy succeeded in isolating œstradiol from follicular fluid, and it is now believed that this substance is in fact the naturally occurring œstrus principle For clinical purposes it is usually supplied in the esterified group, esterification being made in the phenolic hydroxyl group The most popular ester is the benzoate

BIOLOGICAL ACTIVITY OF THE ŒSTROGENIC GROUP

In the past it has been the custom to describe these substances as œstrogenic, but A S Parkes points out that this limits the biological activity, which is always multiple He suggests instead the use of the term "gynæcogenic" The following is a list of the activities of these substances —

1 They will produce vaginal œstrus in the small rodent

2 In association with the corpus-luteum hormone, to be mentioned later in these articles, they are capable of replacing completely ovarian therapy, even in primates

3 They have an action on the uterus causing enlargement of the breast and growth of the nipple and symphysis pubis

4 When given in large quantities they will inhibit the functions of the anterior lobe of the pituitary, particularly its power to secrete the gonadotrophic hormone

The main clinical use of the substance is in replacement therapy either alone or in association with the corpus-luteum hormone progesterone. By far the most satisfactory results have been those obtained at the menopause, and the treatment of climacteric disturbances by the injection of œstradiol benzoate or œstrone benzoate has now become standard Unfortunately, these substances are not readily absorbed from the alimentary tract, and therefore injection is the preferable route, although a number of papers have been published describing the treatment of menopausal symptoms by the administration of both œstrone and œstradiol by mouth. A very highly active derivative of œstradiol has been obtained by H. H Inhoffen and his collaborators, and is known as ethinyl œstradiol (fig 5).

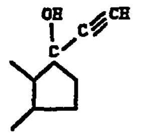


FIG. 5—Ethinyl œstradiol

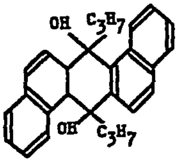


FIG 6—9 : 10-dihydroxy-9 : 10-di-*n*-propyl-9 10-dihydro-1 : 2 · 5 · 6-dibenzanthracene

Despite extensive attempts to produce these substances synthetically from ordinary chemical products, no success has yet been reported This is not surprising when the complexity of their structure is considered The stereo-isomeric forms provide problems of especial difficulty, since unless substances of the same formula have exactly the same spatial arrangement of groups their activity will not correspond

The fact that several substances of differing constitution have the same biological activity led to a new approach to the problem, and an intensive study of the specificity of the œstrus reaction was begun The biological action of a large series of phenanthrene compounds was examined, and in 1933 Cook, Dodds and Hewett published a paper giving the activity of a relatively simple substance, 1-keto-1 : 2 : 3 : 4-tetrahydrophenanthrene, which produced the same response as œstrone, although its potency was many hundred thousand times less As a result of this work a number of compounds with varying degrees of activity were obtained, and finally one whose activity approached that of the naturally occurring substance œstriol. This was 9 : 10-dihydroxy-9 10-di-*n*-propyl-9 . 10-dihydro-1 : 2 : 5 : 6-dibenzanthracene with the formula shown in fig 6.

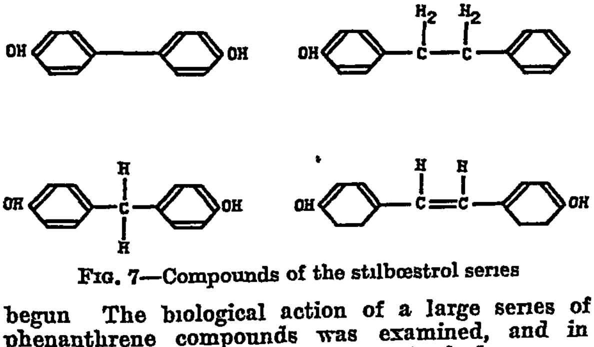


FIG. 7—Compounds of the stilbœstrol series

The next important step was made when Dodds and Lawson demonstrated that the phenanthrene-ring system was not essential for œstrogenic activity, and described a large number of active compounds of relatively simple structure. This greatly widened the field of research, and an intensive attempt was made to simplify the molecule and at the same time increase the potency. Fig 7 shows the type of compounds found to be active in different degrees

Among other substances, the activity of anol, *p*-hydroxy propenyl benzene, was investigated, and it was thought at first to possess very great potency Later, however, its potency was shown to be due to a contaminant formed during its production This contaminant was assumed to be a polymeride of anol, and almost certainly a dimeride, and in consequence all the possible dimerides of anol were synthesised and the activity of many of them was described. This work culminated in the synthesis of a derivative of stilbene, 4 4′-dihydroxy-α:β diethyl stilbene, which was found to be very highly active. Its formula is seen in fig 8 This substance, which is generally known as diethyl stilbœstrol, or stilbœstrol, has an activity considerably greater than that of œstrone, being three to four times as potent subcutaneously It is nearly as active when given orally as by the subcutaneous route, whereas it will be remembered that the substances obtained from natural sources are relatively inactive when given by mouth This substance has been tested experimentally and clinically, and it appears capable of replacing all the known functions of the naturally occurring œstrogenic substances

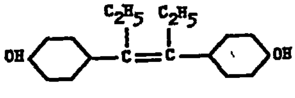


FIG 8—Stilbœstrol

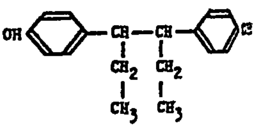


FIG 9—Dihydro stilbœstrol

A series of derivatives of dienes of the diethyl compound were tested, and it was found that the 4.4′-γ.δ-diphenyl-β.δ-hexadiene was very highly active, having an activity about the same as diethyl stilbœstrol subcutaneously, but being much more active when administered orally

In an attempt to explain the high activity of some of the batches of anol obtained, extensive work on the composition of the mother liquor obtained from the crystallisation of anol was carried out, and eventually a crystalline substance of great potency was isolated. This was dihydro stilbœstrol, or hexœstrol (fig 9). It was also produced by the hydrogenation of diethyl stilbœstrol and by the hydrogenation of the hexadiene compound referred to above It has been tested by animal experiments, and will produce œstrus in doses as low as 1 μg

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 7, 1939

Notifications—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1263; diphtheria, 952; enteric fever, 39; pneumonia (primary or influenzal), 379; puerperal pyrexia, 153; cerebrospinal fever, 18; poliomyelitis, 42; polio-encephalitis, 2; encephalitis lethargica, 2; dysentery, 37; ophthalmia neonatorum, 85. No case of cholera, plague, or typhus fever was notified during the week.

Deaths.—In 126 great towns, including London, there was no death from smallpox, 3 (2) from enteric fever, 1 (0) from measles, 1 (0) from scarlet fever, [illegible] (0) from whooping-cough, 19 (0) from diphtheria, [illegible] (5) from diarrhœa and enteritis under two years, and 14 (3) from influenza The figures in parentheses are those for London itself.

Middlesbrough reported the only death from typhoid [illegible] London Swansea had 2 deaths from whooping cough [illegible] cases of diphtheria were scattered over 15 great towns Liverpool reporting 3 Manchester and Birmingham each had 4 deaths from diarrhœa

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month, his name can be seen later in the half yearly index

FROM A POITRINAIRE

IV

ARE doctors ignorant? It is an old question and I may be plagiarising some earlier Grains-and-Scruples columnist by reopening the subject The indictment is usually made on the grounds of "lack of general education" but might be extended to a count of "ignorance in his own profession" Scholarship is certainly less prevalent among medical men now than it was fifty years ago, we have too few Wilfred Trotters and StClair Thomsons In the days when an M A. of a Scottish university meant something, the men—and they were many—with these letters after their name could boast of a liberal education My own professor of medicine was a triple first-class honours man (classics, maths and medicine) and many of our medical teachers held an honours arts degree *Per contra,* I have met very few medical M.A.s of my own generation who have derived any obvious benefit from their brief sojourn among the literati Nowadays, with the number of new entrants limited, an extra year or so spent in acquiring an M A or B Sc makes a useful back-door entrance to the medical curriculum, but the youth who is taking an honours degree in arts or science either does not want or cannot afford to spend another four years as a medical undergraduate It is, I think, also true to say that, apart from parental example, the cream of our schools mostly choose other professions than medicine As an Aberdeenshire farmer put it when asked what his only son was going to be "If he has onny brains, we'll mak' him a dominie or a farmer, but if no, he'll need to be a parson or a doctor" If lack of scholarship be admitted, the modern medical man, with greater leisure, freer contact with his fellows and a good radio, has gained in worldly wisdom and general knowledge Even if he cannot read his Greek odes in the original, he is as good as his forbears in shrewd observation, in coherent thinking and in the expression of his ideas, the general excellence of the Grains and Scruples of my predecessors is but one example which goes to prove it

• • •

What of the present-day doctor *qua* doctor? I will not be tempted to reform the medical curriculum, though I sometimes think it becomes more and more like the course for the D P H —a mouthful of everything and a bellyful of nothing It is the finished product we are discussing As a profession we are too apt to vaunt ourselves, to be puffed up The consultant, with his flattering followers, becomes a pompous bigoted bully, the G P laps up the praises of his gullible patients and becomes a self satisfied prig, the university teacher basks in the respect and adulation of his students and thinks himself the salt of the earth, the researcher regards all other medical men as ignorant fools Not thus do we gather wisdom, and we must keep ever in our hearts the biblical injunction to walk humbly But let us examine more closely that bulwark of our profession, the family doctor I have often argued that the nearer he is to a large hospital, the less efficient is he as a doctor, for then he can sit in his surgery and refer 75 per cent of his patients to this or that dispensary In justification he will tell you that with an overcrowded waiting room it is impossible for him to examine the patient who in turn is quite pleased to go to the hospital where he has to take his shirt off and be examined by the specialist It matters not that the patient may have to spend half a day there or that the "specialist" proves to be a recently qualified houseman The hospitals are largely to blame for the unsatisfactory conditions at their dispensaries, stupid rules that all patients must attend at a certain time are insisted on, and, because it is essential to state in the annual report that so many more patients were treated this year than last, all and sundry must be welcomed It is good to know that certain hospitals are at last taking steps to put their outpatient departments in order

But we have wandered from our premise that the country practitioner is a better doctor than his counterpart in town Here is no dispensary round the corner, he himself must examine and diagnose and treat this curious skin rash and that pain in the stomach, and so he learns his medicine and becomes self-reliant In my resident days we used to divide the G P s into the sheep and the goats according to their diagnostic ability, there were very few country doctors on our black list. Besides, the country practitioner, with fewer distractions, often develops a culture and personality which his town cousin lacks I have said more than enough (I hope) to set the bees buzzing, may we soon see a "Town Doctor" and a "Country Doctor" taking up the cudgels and scrupling not to give us their grains of wisdom

• • •

From medical men to medical meetings and why are they nowadays so unattractive? How often do we hear "Oh! the meeting itself was rather dull but I met So-and so and So-and so!" And we hasten to add that of course that is the main function of such meetings But is it? Not to the young worker who is perhaps giving his first communication, he is full of enthusiasm and excitement over this business of addressing a distinguished audience (and he is a rarity who even at 60 does not share a little in that excitement) On the day of the meeting he discovers a lecture-room filled to overflowing but also an agenda so overcrowded that his communication must be limited to 10 minutes. When his turn comes, he says his piece as best he can though the 10 minute restriction has rather upset him At the end of it there is some perfunctory applause, then a stony and uncomfortable silence and presently the chairman says, "If there is no discussion on this paper, " Changed days surely from what he has heard from his seniors about the glorious discussions and arguments at the —— Society

In truth, the two cardinal sins of our modern medical meetings are an overcrowded lecture room and an overcrowded agenda Each in its own way puts a curb on discussion which should be the life and soul of such gatherings. The medical meetings of which I have the happiest memories were those of what we called the X-club, whose membership was limited to 40 junior men from all branches of medicine, although we occasionally invited our senior emeritus members to attend The principal speaker was allowed 20 minutes for his communication, and then, after an interval for tea, the discussion, in which many members took part, would go on for an hour or more.

The fever hospitals group of the M.O.H Society, with its small and enthusiastic band, has something of the same atmosphere, and I mention it to introduce a point which needs an airing Among the many attributes of the late E W Goodall none was finer than his faculty of saying exactly what he knew to be facts Sometimes it was disconcerting but always one knew it was the truth which needs no adornment. This quality of matter-of-factness cannot be set too high among the virtues How often are we tempted to exaggerate, to twist the facts just a little bit in order to put our own work in a better light, or, conversely, to deride the work of others This tendency to exaggeration is, I venture to suggest, more common among clinicians than laboratory workers, among the English than the Scots, among women than men, but let me add, lest I incur womanly wrath or the displeasure of my English and clinical friends, there are many exceptions, and of course I exempt the hyperbole of the Irish to which it is a sheer delight to listen. You will have guessed that I am one of the unco' guid—a male Scots laboratory worker.

* * *

As a poitrinaire (that word, though euphonious in our ears, sounds as nasty to a Frenchman as our consumptive does to us) I have given some little thought to the problems of pulmonary tuberculosis. The annual reports tell us of the steady decline in the disease, for which much credit is given to the nation-wide provision for the better diagnosis and treatment of tuberculosis I know that much excellent work is *being done* by tuberculosis officers up and down the country, but how are we to explain the fact that pari passu with the decline in mortality from tuberculosis goes a steady fall in the deaths from pneumonia and bronchitis for which *no* special "schemes" exist? Must we admit that the fall in the death-rate from *all* respiratory diseases is due to an all-round improvement in the hygiene and standard of living of the community? And how about the *persistently* high rates for adolescent girls? I sometimes wonder if it would be more profitable to divert some of the publicity which is given to the dangers of drinking unpasteurised milk to the problem of *ensuring* the health of the potential mothers of our race

Once infection has occurred, the two great tasks confronting us are early diagnosis and rehabilitation In the early stages only the X ray will discover the disease, and I am a strong advocate of routine radiography for all entrants to public services—His Majesty's forces (tubercle is now the commonest cause of invalidity from the army), the civil service, local authorities, banking houses, insurance offices and the like It is true that many will develop infection after entering these services but routine radiography of young adults will, as French and American figures have shown, bring to light 0 5–2·0 per cent of cases of early pulmonary tuberculosis. By photographing the image from a fine fluorescent screen, a miniature radiogram—which may be studied at leisure by the expert—can be obtained at a cost of less than a penny.

Early diagnosis means more effective treatment and a better prognosis, but what of the many ex-sanatorium patients who are at present forced to compete in the market for work which they are quite unfitted to do Follow-up statistics have proved that the first 2–5 years after discharge are the most dangerous *for* the sanatorium patient whose disease has been brought to a quiescent stage Medical supervision, and where necessary financial assistance, are essential during that period when the *patient* is becoming stabilised to the new-old life in the outside world Inevitably, also, many of the younger patients forget the good advice of the sanatorium slogans—"Make your leisure hours your rest hours," "Sitting on your bottom is as good a pastime as any," "You are cured of tuberculosis only when you die" Let me add two warnings from my own experience (1) beware of the *attack* of 'flu when there is no epidemic about, it may be the herald of something *more* serious *than* influenza, and (2) avoid sun-bathing. My own lesion of 24 years' standing was, I'm pretty sure, re-activated after a ski-ing holiday, and I fear that the present craze for over-exposing our unaccustomed skins to the sun may do more harm than good.

What progress have we made in the treatment of the disease? Collapse of the lung by artificial pneumothorax or by more drastic methods has been proved, even *statistically*, to save lives, but *what efforts* have we made to improve medical treatment apart from perhaps changing our ideas about the relative importance of rest, good food and fresh air? Gold-therapy has its *adherents*, but *the* experienced *and* unbiased physician will give you a non-committal report about its worth. How much money do we spend on research into tuberculosis and how much on cancer? Yet which is the economically more important disease? The projected research unit which the Middlesex county council felt obliged to abandon would have been a step in the right direction. It seems we need a Goebbels to direct our anti-tuberculosis campaign

* * *

And now I must stop, having tilted at only a few of *the many windmills on my mind's horizon.* How differently—and how much better—we should do our Grains and Scruples if we had to begin all over again!

Next month RECHAUFFEUR *will be responsible for these columns*

A CASE OF CARBON-MONOXIDE POISONING

Dr. Gilbert Burnet writes. I was called at 8 o'clock one morning lately to a man who had "given himself a dose of gas" I found a man of about 63 lying on the kitchen floor, attended by an A R P first-aid enthusiast who thought that he was performing artificial respiration. He told me that the *patient* had stopped breathing about five minutes before Although I felt that it was almost hopeless to resuscitate one who had actually stopped breathing for so long I gave artificial respiration by Schafer's method (much to the alarm of my assistant when he saw mucus being forced from the man's mouth). As soon as possible I allowed him to inspire one or two breaths of almost pure carbon dioxide from the bag of a Sparklet resuscitator by closing the air ports with my finger. Schafer's method was continued with the resuscitator allowing about 10 per cent CO_2 and air, and on examination of the heart sounds I *found them quite distinct* with the auricles fibrillating. I injected 2 c cm. of Cycliton intravenously. It was 8 30 before there was any sign of spontaneous breathing. Artificial respiration was continued until 8 50, when I thought it safe to remove him to the waiting ambulance I saw him again at 11 A.M. in hospital; *his pulse was regular*, his breathing normal and he roused when spoken to The next day he was feeling tired, but had no headache or disturbance of vision, *and* was able *to* talk about his attempt at suicide. He was fit to resume work in another three weeks I attribute the rapid recovery and the absence of *sequelæ to the early and continued* use of carbon dioxide

LETTERS TO THE EDITOR

MEDICAL MEETINGS

SIR,—At this time of year our medical societies gather together afresh for the purpose of discussion The war is likely to diminish the volume of medical talk so that what is said will be all the more important An opportunity thus arises for considering some principles of discussion The first is shortness The formal lecture lasts an hour, after which one adjourns for tea, or less fittingly rushes away at once saying, as one helps one's senior into his coat, "Yes, yes, very good indeed I must read it carefully when it comes out" But with a discussion things are different The essence of the opening paper is its brevity Chairmen have from time immemorial tried to cut these down and to limit them Coughs and signs are followed by polite remarks, all without avail We need a change in spirit A lecture should be complete, opening papers of a discussion should not be It is essential to leave some loopholes through which adversaries may try to get a thrust The speaker always has the chance of a riposte in his reply He knows his subject well, and if he tries at the outset to answer all the criticisms of his own statement that come to his mind, he loses the thread, bores his hearers, and leaves nothing for them to discuss Discussions should not be published, though they may be reported but not by a stenographer taking all down, rather by someone with sufficient education and knowledge of the subject to extract the kernel. Most medical discussions need a medical man as reporter, but not necessarily an authority on the subject Indeed it is sometimes better if he is not, so that a physician reports on surgery and an orthopædist on ears

As we shorten time so should the speaker shorten words One of the banes of medical speech and writing today is the length of the words used This is chiefly due to those followers of the biological sciences upon whom we have to depend for many of our advances They always turn to a classical language which by common consent has dropped out of our preliminary education, so that the words in themselves are as meaningless to the modern student as ones concocted from Bantu Further, they seem unable to name a new concept in less than five or a new structure in less than three lay syllables But while we who practise the art of medicine must be dependent upon the physiologists and pathologists for our new terms, we have only ourselves to blame for drifting into their bad habits when choosing the other words we use Lincoln moved the world with two hundred and sixty nine words in his Gettysburg speech, and of these only thirty had more than two syllables To read this speech aloud more slowly than anyone would speak at a medical meeting takes just three minutes With due economy of syllables it should be possible to introduce any medical problem suitable for discussion in five minutes When medical speakers realise that their failure is complete if they take more than ten, our chairmen's anxieties will have gone

There is yet another way in which time may be saved and lucidity improved by the elimination of all "ums" and "ers" It should be considered as great a breach of manners to emit one as it is to belch in company

I am, Sir yours faithfully,

Oct. 24.　　ANTI WINDBAG

BLOOD-GROUPING TECHNIQUE

SIR,—It may be that in these days there are some amongst your readers who are being called upon to do blood grouping tests whose practical experience is yet so small that they may pay undue attention to anything that has the cachet of appearing in your columns If so, it is perhaps desirable to point out that the paper by Mr Walters which you published on Oct 14 contains much that is dangerously misleading Many will doubtless have realised that there was something odd in a method that involved dividing 50 by 100 and getting the answer 2, and some may have found it as queer as I did that the lower the hæmoglobin percentage of the blood to be grouped the more one should dilute the blood for the test Presumably what Mr Walters really does is to divide 100 by the hæmoglobin percentage figure, and not vice versa As a minor point I may add that the figure at the top of the bulb of the leucocyte pipette which I take to be Mr Walters's "mark 2" is really 11 In the section dealing with cross-agglutination we are told to test the recipient's cells with the *donor's* serum This of course is not ordinarily done in transfusion work, if individual matching is done the essential procedure is to test the recipient's serum with the donor's cells, as the one danger to be avoided is the clumping of the donor's cells by the recipient's blood It is generally agreed that the agglutinin in the donor's serum is so diluted in the recipient's circulation that it may be disregarded

I am, Sir, yours faithfully,

London S W 5 Oct 21　　G W GOODHART

ELECTROTHERAPEUTICS IN MILITARY HOSPITALS

SIR,—A vast amount of thought, effort and money is being expended on providing adequate equipment for military hospitals Very little is being done in this respect for the electrotherapeutic departments of these hospitals, though their work is of outstanding importance for

(1) relief of pain,

(2) healing of *infected* wounds,

(3) rapid restoration of function to maimed and injured limbs

This is disastrous, for during the last war we gained valuable experience regarding the treatment of these conditions Since then great advances have been made, especially during the last six years which have seen the introduction into this country of short wave therapy, which is perhaps the greatest contribution of our age to physiotherapy Its results are remarkable and convincing even to the *most conservatively* cautious

Short wave therapy is of definite value in inflammatory processes in the chest and is indicated even in very acute and subacute conditions *In fact*, the more acute the inflammatory process, the more effectual it is It has shown wonderful cures in the treatment of pneumonia pleurisy and empyema It is a valuable adjuvant in the treatment of acute and chronic bronchitis and bronchiectasis while, if used in time on gassed cases it is able to prevent those terrible and highly fatal complications—lung abscess and gangrene Cure in these cases is brought about by active hyperæmia, which increases the absorptive power of the pleura, relieves all acute symptoms and is often almost startling in its results. The reduction of inflammatory infiltrations, the absorption of exudates and the clearing up of shadows—every change can be studied and controlled by X-ray examination There are countless other cases besides acute inflammations where short-wave therapy has proved its immense superiority to diathermy or any other therapeutic agent, especially in the treatment of infected wounds and in the prevention and cure of gangrene in damaged extremities.

The application of ultra-high-frequency currents demands care and knowledge of their effect on the human body, especially as regards capillary reaction. Dosage is of extreme importance, moderate dosage, producing a vaso-dilation, is of great value in aiding absorption and fortifying the general resistance of the organism; over-dosage, on the other hand, leads to stasis and capillary paralysis Once this is grasped, technique is much simpler than that of diathermy. The treatments are short and there is a great saving of time. Also short-wave therapy is a safe physical agent Machines must, however, be of adequate output or power, 300 watts for ordinary cases and 500-600 for serious lung cases

Every military hospital should have at least two of these machines, even casualty clearing stations should have one for the immediate relief of pain. This is by no means impossible, for a first-rate 300-watt machine can be bought for £150, and smaller ones for £90. Compared to the cost of X-ray apparatus these are small sums There are many good English machines on the market today. Every available machine in the country should be at once bought up by the authorities and more should be ordered here and from America, for the time is coming when we shall need more than we have Besides these machines, all that an efficient department needs are a few radiant-heat and infra-red lamps and some galvanic and faradic batteries The cost of these is trifling With this equipment diathermy machines need no longer be purchased. After twenty years of diathermy and six years of short-wave therapy, I have come to the conclusion that everything done by diathermy is better and far more rapidly achieved by short-wave therapy, which can also be safely applied to acute inflammatory and purulent conditions where the use of diathermy is attended with considerable risk

I am, Sir, yours faithfully,
JUSTINA WILSON.

Wimpole Street, W.1, Oct 20

EPILEPSY FOLLOWING CARDIAZOL TREATMENT

SIR,—Wilson and Thomas[1] cite a case reported by Hobson as the only one in the literature in which spontaneous epileptic fits have occurred after treatment by Cardiazol. The following records are therefore of interest.

CASE 1 —A male schizophrenic, admitted in 1936 at the age of 22. has since shown periods of catatonic stupor, catatonic excitement and a fatuous, hebephrenic condition with hallucinations, insane mannerisms and silly, impulsive outbursts. During November and December, 1937, he was given a course of cardiazol, consisting of 24 injections with the production of 17 major fits, but without any improvement in his mental condition. From March to June, 1938, he was treated with combined insulin and cardiazol, 9 cardiazol convulsions being induced. In November, 1938, he had a typical spontaneous major epileptic fit witnessed by a charge nurse of many years' experience falling heavily with a cry, becoming cyanosed and passing through tonic and clonic stages.

CASE 2 —A female, admitted in 1937 at the age of 25, has been suffering from an atypical mania Between April and July, 1938, she was given a course of cardiazol, receiving 26 convulsant and 19 subconvulsant doses. In August, 1938, four weeks after her last cardiazol injection, she had a fit described as epileptic by the nurse who saw it and on examination 15 minutes later was confused and lightly cyanosed, and had extensor plantar responses.

Although there was no previous history of epilepsy in either of these two patients, one cannot say that they were converted into epileptics by the treatment, as Hobson's case appeared to be, since only one major fit occurred in each. As I have previously pointed out,[2] spontaneous epileptic fits are by no means uncommon in schizophrenia and allied states, so that the cardiazol may have played no part in their causation

I am indebted to Drs. Retallack Moloney and Russell, who were responsible for the treatment, and to Dr. Lewis, medical superintendent of St. Bernard's Hospital, for permission to record these cases.

I am, Sir, yours faithfully,
ARTHUR HARRIS

St. Bernard's Hospital, Southall, Oct. 11

GENERALISED VACCINIA

SIR,—The rarity of generalised vaccinia makes it worth while recording the following case.

The parents were healthy and had neither been vaccinated within the last fifteen years The patient was a male child of eight months, weighing 20 lb. The skin was normal and there had been no previous skin affections. About eight weeks before there had been a mild attack of bronchitis, from which recovery had been complete. Vaccination was performed on Aug. 8, 1939. One drop of lymph was used, and two scratches were made, about 5 mm. long and 3 mm apart Neither scratch drew blood. The site of insertion was inspected on the fifth day (Aug. 13) when two vesicles were noted both about the size of a large pin's head. By the tenth day (Aug. 18) the vesicles had become pustular and had coalesced and the skin surrounding them was red. The child was fretful and feverish now for the first time, but slight constitutional disturbance is usual about this time and no significance was attached to it A small pimple was noticed at this time on the left thenar eminence, which by the evening had become a yellowish white spot about 1 mm. across surrounded by a red areola of 3 mm diameter. This was at first mistaken for a septic spot, but 2 similar spots were found on the left thigh which passed through the same sequence in twelve hours These lesions all developed umbilication within twelve to twenty-four hours after their first appearance. During the following two days 8 further spots appeared and matured with the same rapidity: their distribution was: left thenar eminence, 1; left thigh, 2; sole of right foot, 2; between toes of right foot, 3; right shoulder, 1; back, 2. The fever and constitutional symptoms subsided after twenty-four hours, the child taking its food normally and appearing well and happy. Both the primary vaccination marks and the secondary ones healed at approximately the same time, though the secondary scabs have left practically no mark at all. No treatment was given beyond keeping the pocks clean The child showed no tendency to scratch.

As regards the diagnosis of generalised vaccinia, the stages through which the lesions passed are not seen with septic spots, which in addition never show umbilication. The sites of the spots excluded varicella The previously recorded cases show that the secondary pocks occur chiefly between the seventh and eleventh days after vaccination Accelerated maturation is recorded as usual, the time taken being dependent on how early the secondary pocks appear, as they tend to mature at the same time as the primary lesion P R Evans[1] reported a similar case in 1937, and quotes an incidence rate varying between 1 in 10,000 and 1 in 100,000 vaccinations

---

[1] Wilson, I G. H, and Thomas, W. R, Report on Cardiazol treatment and the present application of Hypoglycæmic Shock treatment in Schizophrenia. Board of Control, 1938

[2] Harris, A, *J. ment. Sci.* 1938, 84, 735.

The Ministry of Health committee[2] found that in a series of healthy adults the spleen was enlarged in two thirds between one and ten days after vaccination, showing that vaccinia is always a generalised infection The accepted explanation for generalisation of the rash is that the patient has failed to develop sufficient cutaneous immunity though partial immunity is obviously present as shown by the rate of maturation

I am, Sir, yours faithfully,

A. K Miller

Crossley Sanatorium Kingswood, Frodsham,
Cheshire, Oct 5

HÆMATURIA AND M & B 693

Sir,—With reference to Dr Buttle's note in your issue of Oct 21 that hæmaturia following treatment with M & B 693 has not been reported in England, it might interest him to know that I myself have had two cases under my care and that I have heard of several others from colleagues in this neighbourhood

I am, Sir, yours faithfully,

L. J Barford

Redhill, Surrey Oct 23

TREATMENT OF VENEREAL DISEASES IN THE FIELD

Sir,—During the last war there were 400,000 cases of V D among British troops These men were evacuated from their units and sent for treatment to a special V D hospital at the base In consequence, they were away from the field for many weeks—sometimes months. It is a matter of common knowledge that men often deliberately acquired V D so as to avoid the dangers of the firing line To prevent as far as possible this wastage of men, I put forward the following suggestions

With modern methods of treatment, there is no reason whatever why a man suffering from syphilis up to the end of the secondary phase or from acute anterior gonococcal urethritis, should be evacuated from his divisional area Such patients can be adequately treated within that area in a field ambulance, a C C S or, preferably, by a special divisional V D unit consisting of an officer experienced in V D and 6 orderlies Such a unit might be attached to a C C S It would, of course, require to be provided with the means of carrying out microscopic investigation for the spirochæte and the gonococcus.

For the treatment of syphilis, the intravenous arsenical should be one such as Stabilarsan, which is already in solution in the ampoule A "914" powder preparation may also be used, with an ampoule of sodium thiosulphate as solvent, so countering any difficulty that might arise in obtaining sterile distilled water The arsphenamine injections should be given thrice weekly (say, on Monday, Wednesday and Friday in doses of 0 25, 0 30 and 0 45 gramme, making a total of 1 0 gramme in each 7-day period) The bismuthic agent should be a lipo soluble one, given intramuscularly twice weekly, the total amount of bismuth metal being not less than 0 2 gramme per week. Though not normally an advocate of the concurrent intermittent method of therapy, I think that under the special circumstances—treatment in the field—that method should be adopted The schedule I suggest is.

UNIT COURSE

Week	Arsph (gramme)	Bi (gramme)	Week	Arsph (gramme)	Bi (gramme)
1	1 0	0 2	6	1 0	0 2
2	1 0	0 2	7	1 0	0 2
3	1 0	0 2	8	1 0	0 2
4	1 0	0 2	9	—	0·2
5	1 0	0 2	10	—	0 2

11th to 15th week	Patient returns to duty
16th to 25th week	Repeat unit course
26th to 30th week	*Patient returns to duty*
31st to 40th week	Repeat unit course
41st to 45th week	Patient returns to duty
46th to 55th week	Repeat unit course

This is followed by serological examination every 3 months for 2 years

The above represents adequate treatment and, when carried through, results in a 100 per cent cure-rate The *man is not only rapidly rendered non infectious*, but even while he is under ambulant treatment, he can in an emergency be sent, without danger to his comrades, to rejoin his unit in the line

The proved efficiency of M & B 693 in the treatment of gonorrhœa renders the evacuation of such cases to the base quite unnecessary The following routine, which has proved so successful at the Whitechapel Clinic, can just as efficiently be carried out in the field

Week 1 Tablets M & B 693 3 grammes daily Pot permang posterior irrigation 1 8000

Week 2 Tablets M & B 693, 2 grammes daily Pot permang posterior irrigation 1 8000
If progress is satisfactory—no urethral discharge and urine clear—at end of Week 2 stop treatment , otherwise continue treatment for Week 2 for a further 7 days

Week 3 Daily observation for 3 days then tests for cure Satisfactory results have been obtained without irrigations but there should be no difficulty in carrying out these in the divisional area

A small proportion of cases will, of course, develop complications, due to the disease or to treatment, and these would be the only ones requiring evacuation to a special base hospital Men on leave or proceeding *to join their units in France, found to be suffering* from V D , should not be hospitalised in England or at the base but, as soon as they are non infectious, should be transferred for further treatment to their divisional area.

I am, Sir, yours faithfully,

E. J Burke

L C C (Whitechapel) Clinic E 1
Oct 23

POITRINAIRE CORRECTED

Sir,—Misquotation is so common that it is seldom worth pen and paper to correct it, but the essays published under the title of Grains and Scruples have been of such high quality that it would be a pity if an alteration both of the original words and of the sense should pass uncorrected.

A little knowledge can never be a dangerous thing—it is a little learning which provides the pitfalls.

I am, Sir, yours faithfully,

Christopher Howarth

Harley Street W 1, Oct 23

---

[1] Evans P R Arch Dis Childh 1937 12 323

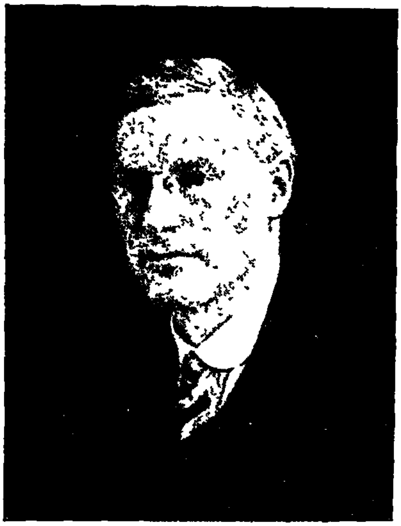
[2] Report of Ministry of Health committee on vaccination, London 1928

OBITUARY

EDWARD PALMER POULTON

M.D OXFD, F R.C.P.

Dr. E. P. Poulton, who died on Oct. 18 at Tunbridge Wells, aged 56, was senior physician to Guy's Hospital. He was the eldest son of Prof. Sir Edward Poulton, F R S., and was educated at Rugby, where he was a science exhibitioner, and at Balliol, where he also held a scholarship. At Oxford besides gaining his half-blue for hockey and playing against Cambridge in 1905 and 1906, he took an honours B A. in chemistry. When he went on to Guy's, his professional leaning towards medicine and physiology was soon shown, for, after holding a Radcliffe travelling fellowship, he became a demonstrator in physiology in 1912 and medical registrar a year later. This was soon followed by a Belt fellowship and election to the honorary staff in 1914 In 1917 he gained his F.R C P. and next year was selected as Goulstonian lecturer He became full physician to Guy's in 1926 and in 1928 gave the Oliver Sharpey lectures to the Royal College of Physicians As editor of the twelfth to fifteenth editions of Taylor's "Medicine," he practically rewrote what is still recognised as one of the best one-man textbooks Besides this he did much original work on oxygen and carbon-dioxide therapy He married Elfrida Maclean and had three sons and two daughters



Elliott and Fry

Although a clinician of merit, Poulton was more than a clinician. In concluding an Oliver Sharpey lecture ten years ago he remarked · "There is a movement nowadays that might be called 'back to clinical medicine' and which is apt to treat the experimental side of the subject with scant respect. I would urge that to place these two methods of observation in antithesis is a mistake. Certain it is that the application of the so-called experimental method to the alleviation of disease requires the most careful clinical observation, and it is not less certain now than it was in Harvey's day that clinical observation must be incomplete without further experimental study" Poulton lived up to this standard himself. At meetings of the Physiological Society he was often present and his contributions to the study of oxygen therapy and of visceral sensations were important In this country, indeed, he was the chief clinical exponent of the use of oxygen in medicine; the country was, in his words, suffering from oxygen want He devised more efficient methods of administration and the improvements embodied in the Guy's Hospital oxygen tent are the result mainly of his own labours The tent was introduced by Leonard Hill, but it was Poulton who made it comfortable to the patient by cooling the atmosphere inside, and in conjunction with Dr. Argyll Campbell he wrote the book on "Oxygen and Carbon Dioxide Therapy" which is the only complete synopsis of the subject in the English language. There are probably few clinicians of his standing who had such intimate knowledge of physiological principles.

T. B L writes: "Nobody is missed from such an institution as Guy's We go away on holiday, and, on our return, someone meets us and realises, for the first time, that he has not seen us for a month And then there comes a day when, through death or age, we go away and do not come back; and, by the time a month is up, someone else is in our place and the hospital goes on as it has for two hundred years In a few more the students and the nurses have not even heard the names of most of us But our influence remains for good or ill The evil that men do lives after them, but I cannot believe that the good is ever interred with their bones It falls as a seed upon the hearts of those that we have taught, and after two or more generations flourishes again for the good of the world. Of the influence that Poulton has left behind all will be, I believe, for the good, and that is because he himself was all good He did not have to tell us about the better things; he followed them Did anyone ever see him cross, or hear him say an unkind word? Who ever heard him tell a doubtful story, or knew him hesitate to come out late at night to see a hospital patient? He was our leader at Guy's at all those attempts, between the wars, to set up some organisation that would have prevented this one When he took the chair at the Christmas union, he did it naturally because it was a part of his life

"Of the staff of a great teaching hospital some not only leave behind an influence but also work that is remembered I believe that Poulton's will live I do not know whether he was the originator of oxygen therapy, but I am certain that it was he who, in this country, put it on a sure foundation, and compelled the medical profession to consider it. And he did this, if not in the teeth of opposition from his colleagues, yet without their support and in the face of ribald laughter. . . . He seemed impervious to jokes or inattention; but got his idea through and went on with it And then one day we awoke to find that Guy's again was famous, and that oxygen therapy was an established part of therapeutics, and our house-officers and juniors were demanding oxygen tents whereby to carry it out. . . He used his influence, which was great, to get grants for his work; but he must also have spent much of his own money on it More probably than he could afford, for he was not the wealthy man that many believed him to be

"I think he was always happy, and if so it was himself that made it so' His death was happy also To fall asleep after a day of happy well-doing, what more could anyone ask?"

JOHN ELLISON

M.D CAMB , F R C O G , F R.C S.E

Mr Ellison, who died suddenly on Oct 19 at his home at Barton-le-Cley in Bedfordshire, was born in India in 1886, the son of the Rev William Ellison He learned his medicine at Cambridge and St. George's Hospital, and qualified in 1911 After the war he decided to take up gynæcology and obstetrics, and in 1919 was appointed registrar at Chelsea Hospital for Women and soon afterwards obstetric registrar and tutor at St George's His next appointment was to the honorary staff of the Grosvenor Hospital, and in a few years he became surgeon to outpatients at Chelsea Chelsea was always his favourite hospital and he gave up much of his time to his patients there A meticulous operator, he attained fine results by attention to detail both during the operation and in aftercare He was a delightful colleague with a high ethical standard (Honest John, they called him), time meant little to him and he was so unperturbed when he was late that nobody else minded either *He took a cheerful view of life both professional and* otherwise and never quarrelled with anyone, at his house one was always sure of a genuinely warm welcome He was not much of a writer, though he wrote a few papers in medical journals and was part author of a book on sexual ethics that appeared in 1934 and his original work on sterility of women remains unpublished His main recreation was yachting, and he and his sons won many prizes with their yachts His wife, previously Miss Dorothy Lambert, survives him, and he also leaves two sons and a daughter

ARTHUR THOMAS PITTS

DSO, MRCS LDS

By the death of Mr A T Pitts the dental profession has lost one of its most distinguished members Born in London on March 3, 1881, he received his early education at Aske's Haberdasher School, Hatcham, and his dental training at the Royal Dental and the Middlesex hospitals he was Saunders scholar at the Royal Dental in 1906, the year in which he took the L D S , and five years later he qualified in medicine. His professional life was a continuous record of success and usefulness, leading up to the presidency of the metropolitan branch of the British Dental Association in 1926 and of the British Society for the Study of Orthodontics in 1931 He examined in dental surgery for the Royal College of Surgeons and was an external examiner for Liverpool University His hospital work was divided between the Middlesex, the Royal Dental (where he was lecturer in dental anatomy), and sick children at Great Ormond Street

Pitts was a man of wide reading, blessed with a retentive memory, an orderly mind, and a ready pen These coupled with a shrewd judgment of men and affairs, fitted him well for the post of scientific editor of the *British Dental Journal* which he had held since 1920 He had the detached outlook of the scientist and his work was generous and free from bias Interested especially in the teeth of children, he was asked by the Board of Education to inspect and report on school dental services, this he did with characteristic thoroughness and his report enabled the board to cooperate with local education authorities in placing them on a sounder footing The experience thus gained and his flair for constructive criticism made the reviews of the annual reports of school dental services which he contributed regularly to the journal acceptable to the various groups—medical, dental, and social—interested in the service For some time past he had contributed articles on dental subjects to our own columns. In 1916 he published a book entitled Care of the Teeth As a teacher he was popular, for his graphic style made him easy to learn from

He served in the last war from 1914 to 1919, being promoted lieut colonel in 1917 when he was in command of a field ambulance with the 2nd Cavalry Division He was awarded the D S O in 1918, being twice mentioned in dispatches At the outbreak of the present war he was posted to the evacuated Mount Vernon Hospital at Northwood where he died suddenly on Oct 15 from a heart attack

In 1915 he married Alexandra Dorothy MacCarthy who, with a son and a daughter, survives him

Mr Maurice Whiting writes The work of Arthur Pitts for the *Lancet* and the *British Dental Journal* was marked by a high degree of erudition and by the literary ability which characterised all his writing His confreres often submitted their papers to him for advice on the manner of their presentation His orderly mind and his wide range of knowledge together with his command of words made him an admirable witness in legal cases and a valued member of the council of the London and Counties Medical Protection Society His many contributions to research would have been better known as his own work but for the modesty which allowed them to come from the institutions to which he was attached without mention of his name He possessed a natural wit that enlivened equally his after dinner speeches and other less formal talk. Personal ambition in the narrow sense was foreign to his nature, though he showed a natural gratification at the prospect of the important post which was about to be offered to him During these last few weeks at Mount Vernon Hospital he impressed all of us with the interest and understanding which he showed in the manifold problems of the new organisation Many discovered a personal friend where they had previously known only a professional colleague

PUBLIC HEALTH

Feeding Children in War-time

The Children's Nutrition Council (72 Horseferry Road, London S W 1) is to continue its work during the war With war control of foodstuffs, it is more than ever necessary to have an independent organisation that can consider how the existing nutritional social services, both statutory and voluntary, can best be used It is further concerned with the adequacy of children's allowances to soldiers, the unemployed and other members of the community

In many places, community centres for the feeding and social life of evacuees have been opened The council believes that these should be encouraged and that they should not be confined to evacuees only To ensure that all children receive at least one well-balanced meal a day, the council thinks that mid day meals should be provided for all school-children including those normally resident in reception areas The demand for free milk for all school-children becomes more urgent than before The influx of mothers and babies into rural areas, and the encouragement now being given by the Ministry of Health, should stimulate many rural maternity and child welfare authorities to adopt free and cheap milk schemes where there have been none before

Many of the arrangements now being made are experimental Some will be good, some not so good The council is trying to find an answer to the question ' What is the most satisfactory way of organising the feeding of the mixed child and adult population in these areas?" and will be glad to receive communications from all who can offer practical solutions preferably backed by experience Where have communal mid day meals been tried? With what success? How far have the children normally resident in these areas been included in the schemes? All communications will be considered as confidential expressions of opinion.

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By Medicus, M P.

Parliament has had three debates of major importance this last week: on war pensions and dependant allowances, on the suspension of local-government elections, and on control of the prices of goods. In addition there was the dramatic interlude at 6 51 P.M. on Thursday when the Prime Minister interrupted a second-reading debate (a parliamentary sacrosanct occasion) to announce the signing of the tripartite treaty between Great Britain, France and Turkey. This announcement was recognised as a major victory on the diplomatic front and of greater significance than the Prime Minister's weekly statement, satisfactory though that was.

The postponement of local elections is a necessity of the war and although objected to by the Maxton group of three, was unable to rally any support on a division and was passed by 222 to nil, the only two members of the challenging group acting as tellers and not therefore counting in the division. The Prices of Goods Bill, which has still to go through its committee stage, is a measure which will check drastically any efforts to profiteer.

* * *

For this reason this prices bill has a very close connexion with the debate on war pensions and dependants' allowances, which revolved around the consideration of the cost of living and the nutritional and general living standards of soldiers' wives, dependants and children. Mr. Tom Williams opened the debate for Labour and made a masterly analysis of the contradictions and inconsistencies which the War Office standard rates have created The soldier at lowest rate of pay allots his wife 7s. a week, after which the Government pay 17s. for the wife, 5s. for the first child, 3s. for the second, 2s. for the third and for every other child 1s. per week. This odd arrangement led Mr. Williams to say, "I never thought I should live long enough to find that the three Service departments and the Treasury had become the greatest advocates of the Marie Stopes theory."

Contrasting money received and deductions in 1939 with money received in 1917–18, the soldier is still exactly where he was, "a shilling a day soldier," but his wife and four children are 6d. a week better off. Taking into account the great increase in rents which has taken place in recent years, this means that many soldiers' families are worse off today than in the Great War One of Mr. Williams's points was that if a soldier's wife and four children accepted the advice of the medical experts who drew up the government report on nutrition she would spend on milk 11s. 4½d per week, or actually 4½d more than the total she has available for food after rent, insurance and other necessary outgoings have been paid. "These allowances simply will not bear a moment's examination" was the feeling of the House on all sides The only good point in the scale was the treatment of the unmarried mother on the same footing as the married if the arrangement was of a permanent kind

Mr. Amery, who has shown a great and increasing interest in all questions concerned with child nutrition, followed Mr. Williams and said that "the one thing we cannot afford to do, even in these days of war, is to neglect the health and upbringing of our children. Let us, at any rate, cherish the flame of the nation's life on our hearths. If we preserve that all sacrifices will be worth making" For, as Mr. Amery pointed out, we may have to make very heavy sacrifices in this war and we may lose hundreds of thousands of the flower of our young manhood; we may be bled white But this "can all easily be made good within a score of years or so if, after our generation, there is to follow another young generation, sound in body, trained in mind and disciplined in character."

Mr. Foot, for the Liberal party, struck the same note, also Lady Astor for the Conservatives, the latter contrasting the 1s. a week for the soldier's wife with the 8s. 6d for the same child when sent to a reception area as an evacuee. As Lady Astor remarked, "a mentally deficient child is allowed 30s. a week, but a soldier's child only 5s." These contrasts "are preposterous."

The case for the Government was lamely made, because the case itself is lame, by Captain Crookshank (financial secretary to the Treasury), but the House was quite unconvinced. The following day Mr. Attlee asked the Prime Minister to institute an inquiry into the whole matter, and furthermore, to arrange to have a minister of cabinet rank on the Government front bench to watch a debate of this importance.

* * *

The Government have indeed been so preoccupied with the fighting services, civil defence and the changeover of the machinery of peace-time Britain to a war-controlled economy that they have almost forgotten, if not the man or the machine, at any rate the generation of children who must take over the responsibilities of this country when the present war generation lay them down

Parliament and the private member are in a very strong position at the present time and there is a greater chance of matters of first-class scientific importance such as the condition of the nutrition of the nation being considered than in times of peace The practical obliteration of party divisions for the time has enabled members of all parties to concentrate on issues of vital importance—literally vital—in a way very difficult in time of party discussions and tactical political manœuvres. There is a danger in war-time of democracy being swept out of existence by rigid control of local and national government by censorship and suppression, but the British Parliament is showing at least the intention of claiming and exercising greater intellectual and political freedom than in normal "political" times.

There may even be a chance for the ideas of the scientist, be he medical or other, not only to affect public discussion, but to be implemented by parliamentary action

FROM THE PRESS GALLERY

Dependants' Allowances

In initiating a debate on pensions and allowances in the House of Commons on Oct. 17 Mr Tom Williams said that there could be no sort of unity in the country side by side with intolerable conditions for the wives and children of the men who were doing the fighting. It was not sufficient for the Government to say that the cost of living in 1919 was so much and the cost of living now was so much less There was a new sense of values in 1939 Men and women all over the country had a great deal more appreciation of the value of a good house and of nutritious food and they required many things that they did not require in 1919. With all the Government inquiries, all the British Medical Association discussions, all their knowledge of nutrition, and all their desire that the people should consume more liquid milk and to promote a better physical standard than had ever been attained before, the Government now stepped in and offered 1*s* per week each for the soldier's children If they deducted 14*s* for rent from the allowance of 35*s* given to a woman with four children, that left 21*s* If they deducted for insurance, coal, light, washing and other materials a sum of 10*s* it left 11*s* with which to feed, clothe and provide all the necessities for that family of five It was impossible that they could be adequately fed When one considered the sum of 2*s* 2¼*d* each per week for food, recreation, clothing and so on, one was tempted to ask what became of the Government report on nutrition If such a woman bought only one pint of milk per day for herself and each of her four children, it would cost 11*s* 1½*d* per week, or actually 4½*d*. more than she had got The result was that these women all over the country were obliged to apply to the poor law for assistance, and this was placing a very heavy burden on the local authorities

Mr Amery said the scale of children's allowances appeared to be indefensible The services apparently thought that 1*s* a week was sufficient for the fourth child The Minister for Home Security or the Minister of Health considered that 6*s* was the minimum that could be paid for any child Somehow or other that anomaly must be redressed The scale he would adopt might begin at 4*s* for the first child, but would rise to 6*s* for later children If the principle of a rising scale was not accepted, let there be a flat rate of 5*s* or 6*s* Mrs Adamson pointed to the B M A scale of 6*s* 9*d* a week as the minimum on which anyone could obtain the food necessary for the preservation of bodily fitness, and she asked if a soldier's wife could spend that amount on her children If she had four children and gave them three meals a day she had to do it on 1½*d* per head per meal—6*d* per day for four growing children

Captain Crookshank, Financial Secretary to the Treasury, said that these scales had been in force for the last 18 months and longer in the Army without any kind of criticism Special precautions had been taken to deal with any hardships and difficulties He would not claim that there was no need for revision of the scales, and what had been said in the debate would be carefully considered by the Government

QUESTION TIME

Oct 17–19

Emergency Medical Service

Mr Rostron Duckworth asked the Minister of Health whether he was aware of the view held by medical men that there was much unnecessary confusion in the relations of the emergency medical services and voluntary hospitals and what steps he was taking to ensure smoother working and general satisfaction amongst those directly concerned —Mr Elliot replied Some initial difficulties are to be expected in putting any large scale organisation on a war footing My officers are in constant touch with representatives both of the medical profession and of the voluntary hospitals and necessary adjustments are being made as rapidly as possible in the light of experience gained

Hospital Beds in Scotland

Sir Charles MacAndrew asked the Secretary of State for Scotland whether, in view of the reservation of beds in hospitals in the cities of Scotland for the reception of civilian war casualties he could say what provision was being made for hospital treatment for patients urgently requiring it in country areas from which in normal times it was customary to travel to the cities for treatment —Mr Colville replied I have had this matter under consideration and I am glad to be able to say that arrangements are being made under which the additional hospital facilities which are being provided under the emergency casualty hospital scheme in various parts of the country will be available up to the limit of their capacity, not only for civilian war casualties, but also for ordinary sick persons in those areas who are in urgent need of hospital treatment which cannot be obtained elsewhere The additional hospital beds under the scheme will come into commission in increasing numbers in the near future Local authorities and other hospital authorities will be informed as these additional beds become available in areas suitable for their purpose and full instructions will be given as to the procedure for the admission of patients and for the recovery of the cost of treatment

Evacuated Children

Mr Ede asked the Minister of Health what instructions had been issued with regard to the medical inspection immediately prior to their evacuation of the second group of the priority classes to be evacuated.—Mr Elliot replied The supplementary scheme of evacuation is confined to unaccompanied children who have been registered I have given instructions that the evacuating authorities should carry out medical inspection and, where necessary, the efficient treatment, of all children to be included in the parties.

Sir Annesley Somerville asked whether any arrangements had been made for the treatment of evacuated children in the receiving areas in respect of notifiable and non notifiable infectious and contagious diseases, minor ailments, and injuries —Mr Elliot replied Yes Sir These matters are dealt with in a circular which I have addressed to local authorities

Sir Francis Fremantle Will the Minister also consider the great importance of nursing attention by which most of this work could be done and which has been, I think, rather left out of his circular —Mr Elliot There is a reference to it in the circular, but I admit that references are not in themselves sufficient I am anxious about obtaining as much assistance in the reception areas from the skilled staffs in the evacuation areas as we can possibly manage

Mr Groves asked whether the Minister was aware that medical men in certain areas to which children had been evacuated were being informed that payment could not be made out of the funds provided for the medical attendance and treatment of these children unless such medical men had joined the scheme for the protection of practices instituted by a voluntary organisation of medical men and if he had sanctioned such procedure —Mr Elliot replied The answer to both parts of the question is in the negative I have received a complaint that the condition to which the hon member refers was being imposed in one area, but it was ascertained on inquiry that this complaint was without foundation

Mr Groves Is the Minister aware that there is dissatisfaction in this matter, and has he received representations from the Medical Practitioners Union, a body affiliated with the Trades Union Congress and if not will he receive representations from that body in the matter?—Mr Elliot: I have received representations as a result of which I had the scheme for the area in question examined and found no such condition as is suggested

Expectant Mothers and Evacuation

Mr McEntee asked what was the number of expectant mothers and mothers with young children evacuated at the outbreak of war, the approximate number who had since returned to their homes, and what were the principal reasons given by such mothers for their return home —Mr Elliot replied: About 11 000 expectant mothers and 415,000 mothers and young children were evacuated I am at present awaiting a return from local authorities as to the numbers who still remain in the reception areas and will communicate with the hon member as soon as I have complete information. Reports made to me indicate that a desire to return to their husbands and homes and a difficulty in adapting themselves to the [illegible] of country life are among the principal reasons for the return.

Road Casualties

Replying to Sir Frank Sanderson [illegible] Lewis Captain Wallace, Minister [illegible]

I regret to inform the House that the number of persons reported to have died during the month of September, 1939, as a result of road accidents in Great Britain is 1130, as compared with 554 in September, 1938. Information as to the number of injured is not available The Government view this increase in deaths on the road with deep concern Since the first days of the emergency efforts have been made to achieve the maximum possible safety in road conditions consistent with the overriding demands of defence against attack from the air The measures taken include the relaxation of the headlamp lighting restrictions, compulsory rear lights for cyclists, the use of hand torches by pedestrians and the provision on a large scale of aids-to-movement, such as the marking of roads, kerb-stones and pedestrian crossings

Experiments have recently been conducted under the direction of my right hon friend, the Minister of Home Security, with a view to mitigating the difficulties due to lack of street lighting, but they have not so far met with success from the point of view of the concealment of objectives from aircraft The public can help to secure a reduction in accidents by exercising increased care on the roads and by refraining from the use of motor vehicles after dark except for absolutely essential purposes I would make a most earnest appeal to the drivers of all motor vehicles to recognise the need for a general and substantial reduction of speed under " black-out " conditions The " black-out " must remain an essential part of our defence measures, and any beneficial effect which a relaxation would have on road accidents must be set against an increased exposure to the risk of heavy casualties from air-raids.

Thefts of Dangerous Drugs

Mr. Alfred Edwards asked the Home Secretary if, in view of the many cases of dangerous drugs stolen from the cars of medical practitioners, he would ensure that such persons were penalised for their neglect

Sir John Anderson It is, of course, important that special care shall be taken as regards the custody of drugs, but I know of no ground for the suggestion that legislation is required to check carelessness by medical practitioners My department has only heard of fourteen cases in the last twelve months where drugs have been included among articles stolen from cars, and in ten of these cases the drugs were recovered intact

Sir Joseph Lamb asked if the right hon gentleman would ascertain the actual number of such cases, not only those which his department had heard of Since this question was raised four years ago there had been repeated instances of dangerous drugs being taken from doctors' cars.—Sir John Anderson. These matters should be reported to the police, they would then come automatically to the notice of my department If they are not reported, I know of no way in which we can obtain the information

Dr Haden Guest Is there any foundation for the suggestion that a large number of these cases have taken place ? It seems rather a slur upon the medical profession —Mr Alfred Edwards Is the right hon gentleman aware that the B.B C have frequently had to warn people of these occurrences and against taking these drugs ? —No further reply was given

Vitamins in Margarine

Mr. Parker asked the Chancellor of the Duchy of Lancaster whether the standard margarine would be of the quality usually termed vitaminised, that was, with additions of vitamins A and D, estimated to bring it up to the vitamin value of butter —Mr Lennox-Boyd replied · Yes, Sir

Reopening of Clinics

Mr George Griffiths asked the Minister of Health when the antenatal and child-welfare centres and the tuberculosis dispensaries of local authorities would resume their normal activities —Mr. Elliot replied. I understand that local authorities generally are using their best endeavours to remedy such disturbances as have been caused by war conditions in the services referred to, and my policy is to encourage this process to the utmost The hon member no doubt appreciates that the actual extent of the service required in any particular area may have been increased or decreased as the result of changes in the distribution of the population, and it is scarcely possible to say when a condition which could be described as normal will be reached in all areas

Tuberculosis Services in Wales

Mr James Griffiths asked what further measures had been taken to deal with the recommendations made in the report on anti-tuberculosis services in Wales —Mr Elliot replied · Action on the report has unfortunately been interrupted by the war, and I cannot say how soon it will be possible, in the new circumstances, for the authorities concerned to complete their consideration of the matters involved. The hutted hospitals in Denbigh and at Chepstow are being proceeded with, and these will, I hope, be of assistance, subject to the requirements of the casualty service, in connexion with tuberculous patients

Medical Examination of Recruits

Mr Groves asked the Minister of Labour and National Service if he was aware of the increasing dissatisfaction among members of the medical profession with the personnel of the medical boards for the examination of recruits, and what representations he had received on this matter from any medical organisation.—Mr Ernest Brown replied I am not aware that there is any general dissatisfaction among members of the medical profession with the personnel of medical boards I received representations last August from the Medical Practitioners Union, but with regard to the method of selecting this personnel I am not satisfied that any change is necessary

Mr Groves asked why in Surrey two medical men were receiving £1000 per year for examination of recruits for the forces, whereas in the same area other available doctors were denied the opportunity of acting for such boards, and whether he would inquire into this matter with a view to eliminating dissatisfaction with these boards —Mr Ernest Brown replied There are five medical boards in Surrey, members of which are drawn from panels consisting, in all, of over 70 practitioners, and I do not think that any increase in this number is necessary Payment is made not at a fixed annual rate but by fees according to the number of sessions attended I will inquire into the distribution of the work among the members of the panels, but I may say that I am not aware of any dissatisfaction in this matter

Inoculation of Overseas Troops

Sir Francis Fremantle asked the Secretary of State for War if units going overseas had been vaccinated against smallpox, and inoculated against enteric fever, and if units that might be sent overseas were being so vaccinated and inoculated in readiness for overseas service —Mr Hore-Belisha replied The answer to both parts of the question is " Yes, Sir, subject to the consent of each individual "

Sir Francis Fremantle asked if the right hon gentleman was aware that at least one unit, of which he knew, which was under orders to go overseas was not inoculated or vaccinated—Mr Hore-Belisha said if Sir Francis Fremantle would draw his attention to the unit, he would investigate the matter.

Mr A Edwards : Will the right hon gentleman accept this as a precedent and stop this filthy business ?—No further answer was given

National Health Insurance Benefits

Mr Gordon Macdonald asked the Minister of Health what action was being taken in view of the increased cost of living to make provision for extra financial benefits for persons in receipt of national health insurance —Mr Elliot replied : The scheme of national health insurance is framed on an actuarial basis, under which the benefits are such as can be provided in return for the contributions supplemented by the proportionate State grant, and a general increase in the rates of benefit could, therefore only be provided by an increase of the weekly contributions payable by the employed persons and their employers. I would point out that the statutory rates of benefit were raised to their present level in July 1920, when the cost of living index figure was 152 per cent above the July, 1914, level as compared with the present figure of 65.

Mr MACDONALD Does the right hon gentleman intend to convey to the House that the present position of these people is satisfactory and is he not prepared to take any action to relieve the hardship on these people?—Mr ELLIOT If approved societies and the hon member make representations that the contribution should be raised, I shall take that into account but obviously the contributions of employers and employed would have to be raised to cover these extra benefits.

Mr RHYS DAVIES Is the right hon gentleman not aware that the state finances the subsidy for this and why does he not suggest that the Treasury should assist?—Mr ELLIOT It is admitted that this insurance scheme is a partnership between three parties and it cannot be suggested that one partner should carry all the expense.

Accidents in Coal Mines

In reply to Mr TOM SMITH, Mr GEOFFREY LLOYD, Secretary for Mines said that in the first nine months ending Sept 30th of this year the number of persons killed by accidents at mines under the Coal Mines Act was 527, and the number seriously injured 2221.

Place or cause	Killed	Seriously injured
Underground accidents		
Falls of ground		
(a) At the face	234	858
(b) On roads	48	129
Haulage and transport	123	606
Gases coal dust and fires		
(a) Explosions	15	28
(b) Others	5	1
Machinery	6	39
Other underground accidents	53	350
Surface accidents	43	210
Total	527	2221

Production of Vegetable Drugs

Rear Admiral BEAMISH asked Sir GEORGE COURTHOPE, as representing the Forestry Commissioners, whether they had taken the initiative to increase the production on suitable land under their control, of such medicinal plants other than lavender and peppermint, as were of major importance and had usually been imported, and whether the Commission was not concerned with the scientific production of vegetable drugs as a war time precaution.—Sir GEORGE COURTHOPE replied The powers and duties conferred or imposed on or transferred to the Forestry Commissioners by the Forestry Acts do not include the production of vegetable drugs. Consequently they have not taken the initiative to increase the production of medicinal plants on land under their control.

RESUMPTION OF EXAMINATIONS IN SANITATION.—The Royal Sanitary Institute and the Royal Sanitary Institute and Sanitary Inspectors Examination Joint Board announce the resumption of examinations on a restricted scale. Particulars will be supplied by the institute or the board at 90 Buckingham Palace Road, Westminster, S W 1.

DRUGS AND INDECENT PUBLICATIONS.—The drugs and indecent publications branch of the Home Office has moved from Queen Anne's Chambers Broadway S W 1 to Cleland House, Page Street, Westminster S W 1 (*Tel* Victoria 4433). Major Coles chief inspector of dangerous drugs, has been transferred to take charge of another department of the home office. Semi-official communications about drugs and indecent publications should therefore be addressed to Mr F Thornton deputy chief inspector, at the new address.

. . . IN ENGLAND—NOW

(FROM OUR PERIPATETIC CORRESPONDENTS)

In Sheffield, where the manufacture of armaments is a staple industry, the outbreak of war is bound to raise conflicting emotions in the populace. Many of the unemployed are being reabsorbed into industry and the shops are crowded with purchasers. But the ubiquity of khaki uniform shows that the city is making its contribution to the country's military effort and that by no means all our young men are in reserved occupations. In times of crisis the demand for individuals with organising skill rises sharply and it is surprising how few there are who can tackle entirely new problems with success. Curiously enough, in an unfamiliar field the official who presumably has some training in administration seems less adaptable than the medical man. The evacuation of hospitals was effectively carried out at short notice, but the arrangements which were made—quite rightly—to deal with large numbers of casualties very soon after the outbreak of hostilities have taken weeks to be adapted to less dramatic circumstances. For a short time the hospitals seemed to be mere units in a bureaucratic scheme but now more normal control has been re-established. Some anomalies still remain. It is difficult to understand why in an air-raid all the City's surgical talent is to be concentrated in two or three centres so that a second wave of invaders should be given the maximum opportunity of destroying several hundred years of surgical experience with one lucky shot. In general changes have been carried out much more smoothly at the University than at the hospitals partly I think because of the simpler problems involved but also because there is so big a reserve of potentially good administrators on a university staff.

With the sudden influx of a lot of new students into an already crowded medical school classes have had to be duplicated, larger lecture theatres found and accommodation for additional teachers provided. Women medical students have always been regarded more favourably in the provinces than in London. Even so it is a distinct change to find the ratio of the sexes reversed and the packed dissecting room presents an unfamiliar appearance. Senior students have suddenly rediscovered an interest in anatomy and are returning to revise under new conditions. It is a good thing for the Londoner to come north and realise that a small provincial medical school is not necessarily inferior to a large London one. Not only is it possible to give students more individual attention but we try also to introduce clinical applications of academic subjects at an early stage. Although the centre of our City is almost completely devoid of beauty it is possible after a short 'bus or bicycle ride to walk over wild moorland. To attain comparable quietude outside London one must spend nearly an hour in an express train.

Listening to or reading news of the war, one's mind inevitably goes back to holidays spent in what is now enemy country. Curiously enough, the things best remembered are the pleasant ones—the Black Forest country folk so pleased to meet an Englishman and so ready to talk objectively about the last war. Looking at a map of the present field of operations I notice that the allied troops are only about five miles away from a little village I have visited twice, once before and once after Hitler's advent to power. It is just over the Luxemburg frontier on the other side of the Moselle and possesses a fine Roman pavement. Of the first visit I remember little except the friendly customs officers. On the second occasion these had been replaced by rather unpleasant Nazi officials who seemed to doubt whether foreigners really wanted to see Roman remains. We also met a number of school children from five to ten years old marching in military formation and singing "Hurra, hurra wir sind ein deutsches Regiment." What a contrast to the children in Luxemburg whom we had seen a few minutes previously playing rounders in the school playground! The curator of the Roman pavement was a German who had lost a leg in the Somme campaign. When the other visitors had gone he drew us aside and told us how much he hated war and how fervently he hoped there would never be another. But Hitler, he said, had militarised Germany and cast a spell over its youth. As he accompanied us to the entrance we saw a big car approaching. It disgorged a large woman in resplendent uniform and two male storm troopers. "Ah, the Frau Fuhrerin," he said, "please forget what I have said." He stood to attention and we left him saying "Heil Hitler" and giving the Nazi salute with a great show of deference. This is an epitome of modern Germany—a militarised youth brought up to regard the Fuhrer's word as divinely inspired and a middle-aged generation knowing war, hating it and yet too much afraid to do or say anything.

The effect of the war on outpatient attendance is now diminishing. At first, only the really ill came and hardly any of those who regard the weekly visit for a bottle of "Rep. mist." as a pleasant ritual. During the weeks immediately before and after war began, the effect on individuals was striking—nearly every patient had a raised pulse-rate and blood-pressure and many showed the complete symptoms of an anxiety state. It will be very interesting to see if there is much increase in thyrotoxicosis in the near future. It has always been difficult to decide whether a thyrotoxic case shows anxiety symptoms because of the disease or whether prolonged anxiety is an ætiological factor

The rising price of drugs will also make a difference to hospitals, and it may not be a bad thing for the practice of medicine if we have to think twice before we write down the ingredients of a medicine. Much rigorous pruning of prescriptions could in fact still be done without great loss to the patient It may soon become necessary to keep a sharp look-out for vitamin deficiency diseases. In our industrial cities many children receive only just enough vitamin D to prevent clinical rickets and with rationed fats we may soon see a great increase in this disease. Fortunately there is no likelihood of a scarcity of vitamin D which is now produced synthetically with relative ease. The striking achievements of synthetic organic chemistry in the field of vitamin research removes any danger of serious avitaminosis Actually, these advances in biochemistry are of much greater value to our enemies than to us, since we are much less likely than they to find the essential vitamin-containing foodstuffs unavailable.

* * *

From a window overlooking our big Manchester town-hall square I can see several anti-aircraft balloons of hippopotamus-like shape. In the sunshine they are silver and I can't help wishing they really did represent a bright lining to our dark international storm-clouds On the flags of the square once each year for nearly a quarter of a century all sorts and conditions of men have gathered for the two minutes' silence on Remembrance Day. Now, instead, there are three big sand-bagged splinter and gas-proof shelters They are for the emergency use of passers-by who might be caught in an air-raid whilst away from the refuges provided for them where they work. Such sights call to mind Tennyson's vision a hundred years ago of the future of the world in Locksley Hall. "He saw the heavens fill with commerce, argosies of magic sails . . . he heard them fill with shouting and there rained a ghastly dew from the nations' airy navies grappling in the central blue." His "parliament of men and federation of the world" has been tried half-heartedly and has failed; less prophetic still has been his picture of the "commonsense of most holding a fretful realm in awe" and of a "kindly earth slumbering lapt in universal law." H. A L Fisher mentions Tennyson's prophecy of aerial commerce in his "A History of Europe" recommended for war-time reading by another of your peripatetics but curiously misquoted heavens as havens

Below that same window from which I see my balloons passed twenty-four years ago some twenty thousand Lancashire recruits for Kitchener's army. They were being reviewed by a group of civilian and military dignitaries on a platform before the town-hall porch. Many were under the average height and were to form the famous Bantam regiment. All were in everyday clothes and unarmed. Today even passers-by shoulder a gas-mask to guard themselves from the "airy navies" and their possible "ghastly dew"

* * *

I have been told of what seems to be an excellent method of treating windows to prevent their splintering into the wards adopted at Mill Road Infirmary The lower panes are criss-crossed with lengths of two-inch bandage stuck on tightly with gold size Thus patients and nurses can see something of the world outside through the uncovered squares The upper panes are completely covered with stretched gauze again put on with gold size The whole effect looks very practical and there is very little interference with the natural lighting of the wards

Nowadays I discover myself often turning over personal memories of the last war, and I notice that many of my contemporaries are apt to do the same. That impressive figure of a gynæcologist passing along Rodney Street brings back vividly a recollection of when we were fellow-housemen at the Northern Hospital for a few months in the earlier part of what we called the Great War—we were both students not yet qualified called in to fill the breach left by the departure of almost all the available qualified men. One night he admitted to my side ward a Chinese seaman off one of the ships that had just come into Liverpool, and he came down to the supper room to tell me that he thought he had spotted a case of pneumonic plague. It was perhaps bad luck that I had recently been reading the life of Dr Jackson of Manchuria, who died fighting a plague epidemic; and armed with the heroic emotions aroused by that story, and a hurried look at "plague" in the text-book, I accompanied him upstairs. There was no doubt that the man had pneumonia, and a fulminating attack at that; moreover there were great subcutaneous hæmorrhagic patches all over the chest We adjourned to the clinic room to talk it over; it *must* be plague, for he was a Chinaman and had a "hæmorrhagic pneumonia" We rang up my chief, the late Dr. W. B. Warrington, to tell him of our discovery; he was a kind man even to fools and overworked and tired as he was, he said that he would come down to hospital. We met him at the door with excitement in our hearts and protective gauze masks on our faces; his eyes twinkled and thus we went in procession upstairs and filed into the room. W. B W. examined the patient, burst into peals of laughter, and goodhumouredly proceeded to demonstrate to us a classical case of apical pneumonia "But the purpuric hæmorrhages?" we asked "His Chinese friends on board," he replied, "have applied their own form of counter-irritation They gouge the man's chest with their knuckles—in a rough and ready way it produces the effect of dry cupping." We sheepishly removed our gauze masks and accompanied him to the lodge. He was still chuckling as he stepped out into the night.

Perhaps we shall have to call on our raw students to act as housemen once again. Looking back on my own experience in the last war, it is somewhat comforting to realise how much stronger is the *vis medicatrix naturæ* than one is apt to realise in the disciplined work of a teaching hospital—the country practitioner knows it far better than we do I still shudder when I recall the first empyema I operated on under those war conditions It was in a child with just three months' medical clerking and three months' surgical dressing, I was pitchforked into the post of house-surgeon. That day there was not an honorary surgeon to be got anywhere in Liverpool to do it, and finally about midnight our one remaining surgeon, tracked down by telephone, told me to do it myself, in those days empyemata were drained as dramatic urgencies I resected a piece of too low a rib and realised that my exploring finger was below the diaphragm In something of a panic I sewed up the hole in the diaphragm, and drained the empyema from up above through the primary skin incision The child got better A fellow student of the same standing had of necessity to operate on the strangulated femoral hernia of a strapping negro, his hand was bold and his mind singularly free from inhibitions and with his first incision he went slap into the strangulated bowel There was considerable chaos in the operative field, not relieved by my friend's attempts to regain the initiative Convalescence was rather delayed by a fæcal fistula, but that was all, and the patient left hospital in fine fettle

Medical News

University of Cambridge

On Oct 20 the following degrees were conferred —

M B B Chir —* Norman Langdon Down * Gordon Oppenheimer * D L Ridout * A M Ogilvie, * G S Robinson, * Anthony Hargreaves J D Younghusband N J P Howlings, J C R Nuttall Smith, J B Murray B W Powell, J W Shackle

M B —* J G Warren, * L J Haydon

* By proxy

The clause requiring a candidate for the final examination for the degrees of M B and B Chir, to have obtained honours or to have attained the honours standard in the natural sciences tripos, has been put into abeyance for the present

University of London

At recent examinations the following were successful

D P H

Eva M Cran, Marc Daniels Christina A Gunn S M H Naqvi, G H Shaw C S Thomson and N V Williams.

Royal College of Surgeons of Edinburgh

At the annual meeting of the college held on Oct 18 the following office bearers were elected for the ensuing year

President, Dr H M Traquair vice-president Mr W J Stuart secretary and treasurer, Mr J W Struthers members of the president's council Mr James M Graham, Prof R W Johnstone, Mr J J M Shaw, Sir John Fraser Mr A. Pirie Watson and Dr C Ewart Martin representative on the General Medical Council, Mr Alex Miles convener of museum committee, Mr W Quarry Wood librarian Mr J J M Shaw; and conservator of museum Mr J W Struthers

At a meeting of the college held recently with Mr W J Stuart, the president, in the chair, the following were admitted to the fellowship

Habibuddin Ahmed M B Calcutta, D I Adler M B Cape Town A N Ajinkya, M B Bombay, G M Arnott M B Glasg H A Ball M B Punjab, S I Barnett M B Adelaide, Donald Barton, M B L'pool J F M Cairncross L R C P I, C F Chapple M B Adelaide, H M Coleman M D Toronto W M Couper M D McGill J F Curr M B Edin, G H Darke M B Lond, G S Dhillon M B Punjab, N A Dravid M B Bombay, A S Duncan, M B Edin J I Farr M D Man, R L Fuller, M R C S, E W Gruner M D McGill J H Hofmeyr M B Cape Town, Isaac Karro, M B Edin, J A Kersley M B Brist, A A Khan M B Lucknow G D Killawala M B Bombay J A Kilpatrick M B Glasg, D H Lees M D Edin Abraham Lutton, M B Edin John Macaskill, M B Edin, J K McCollum M B Belf., William McKechnie M B Glasg, C M Marsden, M B Melb, G D Matthew M B Edin, Raymond Mundy M R C S D F O'Brien, M B Melb Aaron Orick M R C S, J R Pierre M B Lond., D A Reid M B Edin J W R Rennie M D Man Robert Roaf, M R C S H G Roberts M B Wales Juliet M De Sa, M B Bombay, J A L Scott M D Toronto, G C Sen M B Edin., F D Smith M B Sydney, Ernest Somasekhar M R C S., Adelard Trottier M D Ontario, F R Tucker M D Man J R A White M B St Andrews, L J Wheaten M B Edin., and J D Wilson M R C S

National Hospital, Queen Square

In view of the coming dark days the outpatient department of this hospital will from Oct 30 be open daily at 9 30 A.M, except on Saturday

William Mackenzie Lecture

On Saturday, Oct 28, at 4 P M, in the hall of the Royal Faculty of Physicians and Surgeons of Glasgow (242, St Vincent Street) Dr H. M Traquair will deliver the William Mackenzie lecture He will speak on perimetry and the visual pathway Dr John Henderson, president of the faculty, will afterwards present the Mackenzie medal to Dr Traquair

British Empire Cancer Campaign

In view of the inevitable curtailment of cancer research the Grand Council of the British Empire Cancer Campaign has decided not to appeal for funds during the war Subscribers have been informed that the appeals organisation is being transferred to St Dunstan's

Child Guidance Council

The council reports that of 43 recognised child guidance clinics in England and Wales, only those in London and Southampton have been closed In all, 25 clinics are still open to undertake the treatment of nervous, difficult, delinquent and retarded children A certain number of these clinics are situated in receiving areas and so are available for the treatment of the more seriously disturbed evacuees Addresses of these clinics and particulars of sessions may be had from the council's new offices at 23, Queen Square, Bath

It is hoped that some of the London clinics including those attached to St Thomas's Hospital and the Queen's Hospital may reopen shortly The children's department of the Tavistock Clinic has been removed to Westfield College, Kidderpore Avenue, London, N W 3, and is open but is unable at present to receive non paying patients The children's department of the West End Hospital for Nervous Diseases is closed, but juvenile cases can be seen in the general psychotherapy department Only urgent cases can be seen at the child-guidance unit at Great Ormond Street Hospital for Sick Children The Maudsley Hospital is closed and removed to Mill Hill Emergency Hospital, but work for children is being carried out at the following London County Council clinics St Mary's Hospital, Highgate St Charles' Hospital, Ladbroke Grove, and Mile End Hospital, Bancroft Road Cases can be seen at these hospitals by appointment only

The Irish Sweepstakes

The accounts of the autumn draw for the Irish Hospitals Sweepstakes carried out last week, showed a much better return than had been expected In spite of the delays in post transit and the disturbed conditions of all European countries a sum of over £1,000,000 reached the promoters during the weeks that elapsed between the outbreak of war and the running of the Sweep The total receipts and in consequence the hospitals' share were less than fifty per cent down from the figures of the corresponding sweepstake last year The result was enough to justify the Hospitals Committee in deciding to carry on the series of sweepstakes and arrangements are in train for a sweepstake to be run in connexion with the Grand National Steeplechase next March, if that race should be held, and if not in connexion with some substituted race The total amount of money collected for the hospitals since the first sweepstake was held in the autumn of 1930 is a little over fourteen million pounds. Prompted by the success of the sweepstakes in aid of the hospitals the newly formed Irish Red Cross Society has decided to adopt the same means of obtaining funds, and a bill to legalise its promoting of a sweepstake has been under discussion in the Oireachtas within the last fortnight and is likely to become law without opposition It is intended to hold the draw about Christmas on a race to be run in January, and the tickets will be five shillings each, half the price of those for the Hospitals Sweepstakes The Bill legalising the Red Cross Sweepstake provides that the Irish Red Cross Society may, if it thinks fit, make grants out of the proceeds to the national Red Cross Societies of other countries. It is understood that each subscriber can state on his counterfoil the country to whose Red Cross Society he would wish a proportion of his subscription to go, and that these wishes will be respected.

EXO-ERYTHROCYTIC STAGE OF MALARIA

MALARIA therapy for general paralysis of the insane has shown that the administration of quinine is of no avail during the incubation period of mosquito-induced malaria,[1] although it can be used successfully in malaria transmitted by inoculation of the blood of a malaria patient This led James [2] to suggest that the sporozoites introduced by the mosquito enter the reticulo-endothelial cells, undergo a developmental cycle there, and produce merozoites, which afterwards enter the erythrocytes of the circulating blood. Other facts support this theory · (1) after intravenous or intramuscular inoculation of sporozoites the blood is non-infective, even in large amounts, for two or three days ; (2) in avian malaria, although the blood at this period is non-infective, emulsions of spleen, liver, and brain are infective ; and (3) in birds certain plasmodia have two schizogonic cycles of development, one in the red blood-cells and the other—the exo-erythrocytic—in the reticulo-endothelial cells of the internal organs. The history of this third discovery is reviewed by Manwell,[3] who recalls that W. Kikuth and L Mudrow, and also R. Hegner and F. Wolfson, last year tried to reproduce malaria by inoculating other animals with the exo-erythrocytic bodies of avian malaria but were unsuccessful The evidence for the plasmodial origin of these bodies, he says, is mainly that (1) they have been found only in malaria, both acute and chronic, and both due to mosquito-bite and due to direct inoculation from one blood to another ; (2) their inoculation has not reproduced the disease caused by toxoplasma ; (3) quinine therapy is effective ; and (4) the exo-erythrocytic cycle has been observed by James and Tate in chicks reared under conditions precluding infection by any other parasites and subsequently infected by mosquito-bite.

Although James's hypothesis was originally evolved to explain what happened to the sporozoites when injected by the mosquito and during the preliminary negative phase in the blood, he also suggested that exo-erythrocytic forms ought to be discoverable throughout the disease The truth of this is now confirmed by Casini,[4] who reports that in a girl who had had malaria for two years the endothelial cells of the capillaries of the brain contained bodies similar to the exo-erythrocytic bodies of avian malaria and apparently representing the primary monogonic stage developed by the sporozoites and presumably responsible for the relapses.

HEAT AND RESISTANCE TO INFECTION

IN white mice J. W. Colvin and C. A. Mills have shown (*Science*, Sept. 22, 1939, p. 275) that moist heat lowers the resistance to infection. Their experiments were carefully controlled · one group of mice was kept in a room at 90° F, with a relative humidity of 65 per cent ; another group in a cold room at 65° F ; and a third at 70° F. Other conditions, such as lighting and ventilation, were the same for all the mice. The mice used in any one group were taken from different litters, their litter mates being used in the other groups. Infection was effected by intraperitoneal injection of a culture of the hæmolytic streptococcus. In one experiment the mice in the hot room were killed by only a quarter of the dose needed to kill the mice in the two other rooms. In another experiment, when all three groups were injected with equal doses of organisms, all the mice in the hot room, two-thirds of those in the room at 70° F, and a third of those in the cold room died within twenty-six hours. Colvin and Mills suggest that difficulty in losing body heat works in the same way as undernutrition by preventing adequate utilisation of even the most perfect diet It is doubtful whether it is justifiable to correlate these results with the effect of climate on the resistance of human beings to infectious diseases, but exposure of the body to cool air has long been used in building up resistance against tuberculosis, and the health of savages is said to deteriorate when their nakedness is covered

Medical Diary

ROYAL SOCIETY OF MEDICINE, 1, WIMPOLE STREET W 1

WEDNESDAY, Nov. 1

Comparative Medicine, 2 15 P M, Dr C H Andrewes, F R S Latent Virus Infections, with special reference to Cancer (Presidential address)

FRIDAY, Nov. 3

Otology, 10 A M, Dr T Ritchie Rodger Syphilis as seen by the Aural Surgeon (Presidential address)

Laryngology, 1 30 P M, CASES, 2 30 P M ; Mr T B Layton Clinical Rhinology (Presidential address)

Anæsthetics, 2 30 P M, Dr Harold Sington Yesterday and Today in Children's Anæsthesia (Presidential address)

Appointments

ARMSTRONG, R W., M D Belf, D P M., hon director of mental health services to the city of Oxford

LYNCH, G. A CARY, M D Lpool, D.P H, pathologist and bacteriologist to the Royal Albert Edward Infirmary, Wigan

Examining Surgeon under the Factories Act 1937 ; Dr. H J C C Smith (Lauder district, Berwickshire), Dr F W Pringle (Moffat district, Dumfriesshire) ; and Dr Nancy B. Cox (Thame district, Oxfordshire)

Vacancies

Braintree, Black Notley Sanatorium —Second asst M O £300 Also jun asst M O, £250

Birmingham and Midland Eye Hosp —H S, at rate of £130

Birmingham Infirmary —Asst res M O, £350

Birmingham, St. Chad's Hosp —H P and anæsthetist, at rate of £150

Brighton, New Sussex Hosp for Women, Windlesham Road —H P, at rate of £100

Bristol Royal Hospital—Radio diagnostician, £500

Colonial Medical Service —Medical officers

Croydon County Borough —Deputy M O H and deputy school M O, £780 Also asst M O H and asst school M O, £500

Glasgow Royal Infirmary —Surgical officer to rehabilitation dept

Golden Square Throat, Nose, and Ear Hosp, W 1 —Hon clin assts

Hull, Anlaby Road Institution —Asst M O, £350

Ilford, West Ham Hospital for Nervous and Mental Disorders, Goodmayes—Jun M O, £350

Lincoln County —Temporary asst M O, £800

Northamptonshire County Council —Asst county M O and district M O H, £800

North Riding of Yorkshire County Council.—Deputy county M O H and deputy school M O., £750

Nottingham Hosp. for Women —H S, at rate of £150

Reading, Royal Berkshire Hosp —H S to maternity dept, at rate of £150

Rochdale Infirmary and Dispensary —H.P, £150.

Royal Cancer Hosp, Fulham Road, S W 3 —H S, at rate of £100

Sheffield, Jessop Hosp for Women —H S, at rate of £100

Stoke-on-Trent, London Road Hosp —Sen res asst M O, £350

Swindon, Swindon and North Wilts Victoria Hosp —Hon surgeon to ear, nose and throat dept

Univ of Queensland —Research Professor of Medical Psychology,

West Sussex Administrative County —County M O, and school M O, £1300

Births, Marriages and Deaths

BIRTHS

FLEW —On Oct 18, at the Radcliffe Infirmary, the wife of Dr J. D S Flew—a son

LAST —On Oct 23, the wife of Dr S L Last, of Runwell, Essex—a daughter.

MACBETH —On Oct. 19, at Kuala Lumpur, F M S, the wife of Dr R I. Macbeth—a daughter

ROSS —On Oct 20, at Welwyn Garden City, the wife of Dr J S Ross—a daughter

WYLIE —On Oct 21, at Eastbourne, the wife of Dr J. R Wylie —a daughter

MARRIAGES

ASCOTT—LE FEUVRE —On Oct 21, at Sydenham, James Robert Ascott, M.B, to Joan Daisy Le Feuvre

DEATHS

ELLISON —On Oct 19, John Ellison, M B Camb, F R C O G, aged 53.

FENNELL.—On Oct. 21, at Hove, Charles Henry Fennell M D Oxfd, M.R C P, aged 68

POLLARD —On Oct 20, at Vrede, Orange Free State, Lieut-Colonel Alexander Morton Pollard, D S O, M R C S, R A M C (retd.), aged 58

POULTON —On Oct 18, at Tunbridge Wells, Edward Palmer Poulton, D M Oxfd, F R C P, aged 56

SILVESTER —On Oct. 22, at Leamington Spa, William George Silvester, L R C P E, aged 65

---

1. See *Lancet* 1931, 1, 1248
2. James, S P, *Trans R Soc trop Med* 1931, 24, 477
3. Manwell R. D, *Riv Malariol.* 1939, 18, 76
4. Casini, G. *Ibid*, p 73

ADDRESSES AND ORIGINAL ARTICLES

FUTURE OF CARDIAC SURGERY

BY LAURENCE O'SHAUGHNESSY, F.R.C.S.

MAJOR, R.A.M.C.; SURGICAL SPECIALIST AT A CASUALTY CLEARING STATION; CONSULTING AND THORACIC SURGEON TO PRESTON HALL, AYLESFORD; SURGEON TO THE LAMBETH CARDIOVASCULAR CLINIC, LONDON

IT may be contended that prophecy forms no part of the equipment of the scientist, but the experimental surgeon, unless he is content to tread the well-worn paths of his predecessors, must have some vision of the future possibilities of his science. A better ideal than any surgical treatment of established organic heart disease would be its total prevention. The recognition of the causal organism of syphilis and the early detection of syphilitic infection have limited the incidence of one fatal type of heart disease. The secret of the cause, cure, and perhaps even the control of rheumatic infection should not be long delayed, although, if it were discovered today, there would remain many thousands of irretrievably crippled hearts as potential material for surgical repair.

It is possible that dietary reform might limit the incidence of coronary disease, though the widespread incidence of arteriosclerosis and vascular degeneration among native peoples living on the most simple dietary offers small encouragement. It is also possible that the correct management of psychological stresses might grant the victims of coronary insufficiency a longer life, but it is difficult to see how this approach could prevent deposition of a thrombus on a diseased segment of artery. From the study of many cases of coronary disease it is hard to resist the conclusion that inheritance is the major factor concerned, and that, until the breeding of man can be controlled, disease of the coronary vessels will remain.

In previous publications the various methods of surgical revascularisation of the heart have been considered. Whatever arguments may be raised against grafting it has for the first time given the surgeon an opportunity of carrying out a large series of deliberate and planned interventions on the heart, which will contribute to the future development of cardiac surgery.

At the same time, as Levine (1937) has pointed out, the real key to further advance in the surgical treatment of established cardiac defects will only be provided by the provision of some simple and efficient method of maintaining the cerebral circulation while the heart is temporarily out of commission. Naturally there are many other problems of a more local nature for solution—the prevention of thrombosis at the site of an intracardiac operation may be cited—but, so long as the surgeon is faced with the certainty of irreparable cerebral damage if he interrupts the circulation for any appreciable period, he has little incentive to devise operative procedures which can never be carried out.

PROVISION OF A BLOODLESS FIELD

The initial difficulty of intracardiac surgery was the temporary provision of a bloodless field, and a solution was provided by Haecker many years ago. He interrupted the venous return to the heart by applying two clamps to the venæ cavæ. When this is done the blood remaining in the heart is rapidly expelled, and the cavity of the heart may be laid open without loss of blood, and operations may be carried out under direct vision. This method is superior to the alternative procedure of clamping the aorta and pulmonary artery, because under these conditions the heart, in its efforts to expel its contents against an irremovable obstruction, soon suffers serious injury in its muscular wall.

Haecker (1907) and Sauerbruch have reported on a series of animals operated on in this way, some of them survived even after the circulation had been totally arrested for ten minutes while the heart was laid open and segments of a cardiac valve were excised. I also have used this method during the last four years. The following are notes of an experiment in which the animal survived after I had excised a cusp of the pulmonary valve by Haecker's technique.

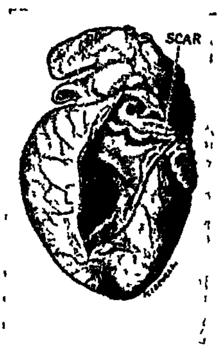


FIG. 1.—Heart three years after excision of pulmonary valve.

A right transpleural exposure of the heart was carried out in a cat under general anæsthesia with positive pressure. The pericardium was opened, and both venæ cavæ were exposed and clamped. After insertion of two stay sutures in the wall of the right ventricle just below the conus arteriosus the cavity was opened through a small incision and a single cusp of the pulmonary valve seized with forceps and excised. The clamps were removed while the wound was approximated with the two stay sutures and closed with two single thread sutures. The clamps were in situ for 1½ min. The animal made an uneventful recovery and was killed some three years later, and it was found that the site of the cusp was occupied by a fibrous bar (fig. 1).

CEREBRAL ISCHÆMIA

Despite the occasional success of this method—and it must be emphasised that in most cases there is no difficulty in restoring cardiac action—in operations on the human heart the key problem of cerebral ischæmia remains, and there is evidence that this problem is of greater importance in man than in the lower animals. Experience with the Trendelenburg operation has provided us with valuable information on this point. Death takes place from heart failure in massive pulmonary embolism just as it will if the pulmonary artery is occluded with a clamp or ligature, and the failure is due to overstretching of the myocardial fibres. Trendelenburg (1905) showed that this acute heart failure could be cured by surgery, and on numerous occasions this dramatic operation has been rewarded by success, at least as far as restoration of the circulation is concerned. The factor which has so limited the number of permanent recoveries has been the attendant cerebral [illegible]. In many cases patients do not breathe [illegible]; in others respiration is restored but the [illegible] have perished and consciousness is [illegible].

The exact period of ischæmia [illegible] various tissues of the body is [illegible] inquiry. It has been claimed that [illegible] the liver and kidneys can recover [illegible] circulation has been totally arrested for 17 min , and I and others have repeatedly observed recovery of cardiac contractions after 10 min. The period required to produce permanent changes in the central nervous system is less certain. Trendelenburg (1908) from his clinical experience stated that any period over 45 sec. was fatal, and from experiments on apes he reached a similar conclusion On the other hand, a patient of Nystrom's (1930) made a complete recovery after occlusion of the aorta and pulmonary artery for 105 sec In the lower animals there is a wider range, but I believe that after a period of 30 sec. a danger zone is entered and, despite the success of many of Haecker's experiments and despite my personal observation of complete recovery in a cat after ischæmia lasting 4½ min , I do not believe that permanent recovery can be guaranteed once a period of ½ min is exceeded. It must be remembered that many physiological observations on this point are suspect because of the difficulty of ensuring complete occlusion of both carotid arteries and both vertebral arteries In the caval-clip method the circulation is arrested at its source and an absolute occlusion readily controlled

The only experiments in which the duration of cerebral ischæmia can be controlled with complete certainty are those in which the isolated and perfused head is employed With this technique Houssay and Hug (1928) found that respiration and even reflexes might return after arrest of the circulation for 5 min , but after 11 min recovery never took place With the caval-clip method I have seen temporary recovery in the cat but not in the dog after a period of occlusion lasting 10 min It must also be remembered that it is one thing to have an animal resume respiration in an acute experiment and quite another to restore an animal permanently to its former state with its higher centres intact.

ARTIFICIAL MAINTENANCE OF CEREBRAL CIRCULATION

From time to time the proposal has been made that the cerebral circulation should be artificially maintained during operations on the heart, but for the most part no detailed technique for this procedure is described. Thus Tuffier (1921) mentioned the injection into the carotid artery of oxygenated Ringer solution for this purpose, but he did not state the oxygen-carrying power of the solution or the amount which would have to be injected to preserve the higher centres from a fatal anoxæmia

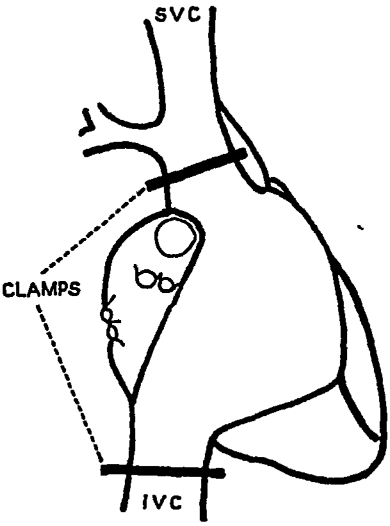


FIG. 2—Caval compression by Haecker's method

The details of the method elaborated during the last three years may be found in the following protocols of two typical experiments and in figs 2 and 3, but an outline of the procedure will be given here.

Perfusion was always made by cannulation of the left common carotid artery, the right common carotid artery was occluded during the perfusion, and provision was made for a venous return from the left external jugular vein. After prolonged trial of the Dale-Schuster pump—an apparatus which has obvious and well-known advantages for perfusion experiments over a long period—motive power for the perfusion was provided by a pressure bottle in which a pressure of 120–160 mm Hg was maintained.

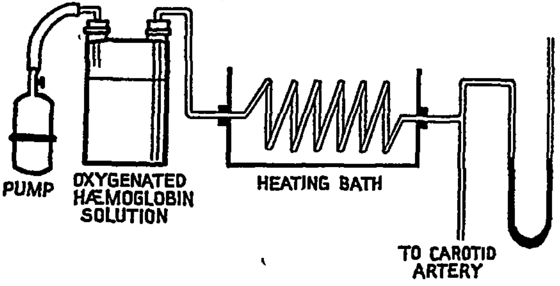


FIG. 3—Perfusion apparatus

The most convenient and easily prepared vehicle for oxygen is the Amberson-Hober 5 per cent. solution of hæmoglobin in Ringer solution This solution not only is capable of maintaining the various centres intact during the short period required in these experiments but also has proved most efficient as a substitute for blood in carrying out an artificial circulation of the lower limbs over a period of hours Blood carries 18 5 c cm. of oxygen per 100 c.cm., and this solution carries only 5 c cm , but it is easy to increase the flow to compensate for this

The circulation was always arrested by the Haecker technique (fig 2) After a right transpleural exposure the pericardium was widely opened and the venæ cavæ were identified. The first clamp was applied to the superior vena cava immediately below the entrance of the azygos vein, and the second clamp to the inferior vena cava As soon as the clamps were in place, the perfusion was started. At the end of 10 min. the clamps were released, the heart filled with blood, and at once the cerebral perfusion was disconnected.

A large series of these experiments were performed both in cats and dogs, but few were successful Often effective cardiac contraction did not persist and was replaced by a fatal and generalised fibrillation In other experiments the heart resumed normal action, but too late for the adequate supply of the cerebral centres Under these conditions the circulation would persist so long as artificial respiration was maintained, but the head reflexes did not return, and there was no attempt at natural respiration

A successful experiment demands that the brain should regain its normal blood-supply within a few seconds of the removal of the artificial perfusion Respiration is at once resumed, and after repair of the extensive wounds in the neck and in the thorax complete recovery of the animal may be expected, as in the following protocols

Protocol A.—A dog, weighing 7 kg., was anæsthetised with morphia gr. 1¼ and nembutal gr 3 The cervical structures were exposed by a middle-line incision, tracheotomy was performed, and a glass tracheotomy tube was inserted The right common carotid artery was isolated, cannulæ were inserted into the left common carotid artery and the left external jugular vein, and the central end of each vessel was ligated. The carotid cannula was attached to the hæmoglobin perfusion apparatus (fig. 3). The perfusion was discarded as it returned from the jugular cannula.

The heart was exposed by an incision in the fifth intercostal space, and, once the chest was opened, artificial respiration by pump was initiated. The pericardium was widely opened and the site of entry of the venæ cavæ into the right auricle carefully identified. The first clamp was applied to the superior vena cava immediately below the azygos vein, and the inferior vena cava was occluded by a second clamp (fig. 2). As the first clamp was closed, head perfusion was begun, and the right common carotid artery was occluded.

The heart immediately diminished in size as its contents were expelled, but cardiac contraction did not cease. During the period of exposure the heart was kept warm by saline compresses. The head showed no special change as the new circulation took over. Eye reflexes remained, and the pupils did not dilate. Natural respiration ceased after the first minute.

At the end of 10 min. the clamps were removed and the artificial circulation was discontinued. The heart was immediately released and full circulation was resumed.

The chest wound was closed by pericardial sutures, a row of muscular sutures and a series of interrupted sutures. Artificial respiration was maintained for half an hour, and then the tracheotomy tube was removed and the tracheal wound carefully repaired. The large wound in the neck was repaired in the usual way after ligature of the left common carotid artery and the left external jugular vein.

The dog then made an uneventful recovery and is now in every way a normal animal.

Protocol B.—A cat, weighing 3 kg., was anæsthetised with ether. The steps of this experiment were identical with those described in protocol A, and again an uneventful recovery took place. This animal has been under observation for some two years and behaves in a perfectly normal manner.

This method of cerebral perfusion is clearly unfitted for immediate clinical application but it is presented as an example of the sort of work necessary for the further advance of the surgery of the heart.

REFERENCES

Adams, W. F., and Lick, W. (1937) *Dtsch. Z. Chir.* 249, 545.
Amberson, W. R. (1937) *Biol. Rev.* 12, 48.
Eichelter, G. (1932) *Chirurg*, 4, [illegible]
Haecker, R. (1907) *Arch. klin. Chir.* 84, 1035.
Houssay, B. A., and Hug, E. (1928) *C. R. Soc. Biol. Paris*, 99, 1503.
Levine, S. A. (1937) Clinical Heart Disease, London, p. 313.
Nystrom, G. (1930) *Ann. Surg.* 92, 498.
Shambaugh, P. (1936) *Ibid*, 104, 823.
Trendelenburg, F. (1908) *Verh. dtsch. Ges. Chir.* 37, 89.
Tuffier, T. (1921) *Congr. Soc. int. Chir.* 1920, p. 5.

BACILLUS COLI INFECTION OF THE URINARY TRACT

ITS RELATION TO BOWEL FUNCTION

BY A. W. D. LEISHMAN, D.M. Oxfd, M.R.C.P.

LATE CHIEF ASSISTANT TO A MEDICAL UNIT AT ST. BARTHOLOMEW'S HOSPITAL, LONDON

THE coliform group of organisms is responsible for 70–80 per cent. of cases of urinary infection, a fact which is usually explained by the proximity to the urinary tract of the bowel as a reservoir of infection. How the organisms migrate is still far from clear, but at least it is evident that they may do so within the body after absorption from the bowel wall by direct spread in the tissues or through the blood stream or the lymphatics. Alternatively the path of infection may be outside the body by transfer of organisms from the anus to the external urethral meatus. Experimental work on animals has shown the possibility of lymphatic spread of infection from the lower to the upper urinary tract. There is no doubt that the route of infection varies in individual cases. In those relatively uncommon cases in which *Bacillus coli* can be isolated by blood culture during the initial acute phase of the infection there is evidence of a spread by the blood stream. Direct spread of infection is the obvious explanation in any case where the urinary and alimentary tracts are adherent at some part of their course—e.g., an appendix adherent to the right ureter, or the colon and bladder bound together in diverticulitis or in carcinoma of the colon. In general, however, the cases in which one or other of these routes of infection can be suspected are uncommon. Neither clinical observation nor experiments on animals have as yet established the common path of infection in the ordinary case of primary infection of the urinary tract with *B. coli*.

The function of the large bowel, which is the natural habitat of coliform bacilli, must be considered in discussions on the ætiology of urinary infection with these organisms. The commonly expressed clinical impression is that bowel dysfunction, especially constipation, is not uncommonly a factor in these cases. The observations here recorded were made in an attempt to establish more definitely whether such relationship does in fact exist or not, and if so what type of bowel irregularity is especially to be incriminated. The first series of cases was a control group to discover whether urine obtained with due precautions from a normal person contains *B. coli* which can be recovered by urine culture.

METHOD OF EXAMINATION

From all the females specimens of urine were obtained by catheter, the first few cubic centimetres of the sample being rejected as being urethral washings. In males a midstream specimen was used.

The culture technique used for these observations will allow the detection of coliform organisms even if present in minimal numbers. The method was originated by MacConkey and later adapted by Bardsley (1926) for testing samples of drinking water for fæcal contamination. MacConkey's bile-salt lactose broth* demonstrates by fermentation the slightest growth of *B. coli* and has the additional advantage of inhibiting to a large extent the growth of other organisms. Four tubes of this medium containing Durham's tubes were used with each specimen and quantities of urine from 10 c.cm. to a loopful (1 mm.) were inoculated. With the large inoculum it was necessary to use a double-strength medium owing to the dilution produced. Fermentation was recognised by the colour change of the medium and by the presence of gas in the Durham's tubes and was recorded as +, ++, +++, or ++++, according to the tube in which it was observed. To assess the degree of contamination by other organisms two further "shake" cultures from 1 c.cm. of urine were made on solid media (litmus lactose agar and plain agar). The bubble of gas formed by each colony of *B. coli* in the litmus lactose agar made their recognition a simple matter. In practice, however, since the investigation was confined to organisms of the coliform group, there was no confusion due to contamination.

FINDINGS IN NORMAL PERSONS

The control group consisted of 100 normal persons. The 50 males in this group consisted equally of those under thirty years of age and those between thirty and forty-five, the former being students and junior medical officers of the hospital and the latter patients attending the outpatient department for minor surgical ailments. The upper age-limit was imposed to obviate the complication of unrecognised prostatic obstruction. In every case inquiry was made as to bowel and urinary function. It was impracticable to pass catheters on 50 normal healthy women. The series of "normal" females was therefore obtained from the surgical wards. For inclusion in this group it was insisted that the patients be convalescent and ambulant, have normal bowel and urinary function, and have had no operation on the urinary or alimentary tract or any pelvic organ.

---

* Peptone 1 g., lactose 1 g., [illegible] 5 c.cm., sodium taurocholate 0·5 g., and tap water to 100 c.cm.

B. coli were cultured from the urine of 3 men and 4 women (see table, series 1 and 2). Of the 3 positive male cases 2 were negative on subsequent examination. The third remained positive for at least three weeks, but was negative when re-examined six months later.

B. coli INFECTION OF THE URINARY TRACT

Series	Investigation	Subjects	*B. coli* present				Total
			++++	+++	++	+	
1	Urine from healthy males	50	2	1	—	—	3
2	Urine from healthy females	50	1	—	—	3	4
3	Urine collected without aseptic precautions from normal males	10	—	—	—	—	0
4	Urine collected without aseptic precautions from normal females	10	6	—	2	1	9
5	Urethral swabs from normal females	25	1	1	1	1	4
6	Urine from males with constipation	14	—	—	—	—	0
7	Urine from females with constipation	40	1	—	1	1	3
8	Urine from males with diarrhœa	16	—	—	—	(1)*	0
9	Urine from females with diarrhœa	36	14	1	2	2	19
10	Effect of laxatives in normal females	12	—	—	1	—	1
1–10	Total	263	25	3	7	8	43

* Omitted from series (see text)

There was no opportunity to re-examine the females. These 7 persons were in good health and free from any urinary symptom. The centrifuged deposit of their urines contained no excess of white blood-cells. The few positive cultures obtained from these 50 females and the fact that in the two sexes the number was almost the same show that the method of collection of the urine was satisfactory, and that contamination by organisms from the vulva was negligible. In fact, urine obtained by catheter in women is a true sample of the bladder urine. This precaution is essential, because the vulva commonly harbours coliform organisms, as shown by the test, in which samples of urine were passed by 10 women directly into sterile jars without other precautions. In 9 cases out of the 10 were *B. coli* grown from these urines, and in 6 cases there was a heavy growth (see table, series 4).

FINDINGS IN PERSONS WITH BOWEL DYSFUNCTION

Constipation.—This group consisted of 14 men and 40 women (see table, series 6 and 7), all of whom complained of obstinate constipation. The diagnosis of constipation was based more upon the hard character of the stools than upon the number of bowel actions, though this in few cases exceeded three a week. Two of the women had had *no* natural action in their memory, the bowel being emptied periodically by *enemata* (one of these patients had megacolon, which was subsequently much improved by sympathectomy). In this series *B. coli* were cultured from the urine of 3 women only—a proportion of positive results almost identical with that found in the control group. These observations, therefore, lend no support to the opinion that chronic constipation is in itself a predisposing cause of urinary infection.

Persistent loose stools.—This group consisted of 16 men and 36 women (see table, series 8 and 9). In every case the stools were loose and bowel actions frequent. Of the 52 persons 30 had definite ulcerative colitis and 4 paratyphoid fever. The remainder were a miscellaneous collection diagnosed as having "colitis" (unclassified). Of the 16 males only 1 gave a positive culture. This case was subsequently omitted from the series, for necropsy showed that besides the ulcerative colitis there was a carcinoma of the sigmoid colon involving and obstructing the ureter.

In contrast to the results obtained from the males 19 positive cultures were obtained from the 36 women. These were evenly distributed through the group and were not drawn especially from those with the severest ulcerative colitis. In 14 cases the growth was massive (++++), but in 5 cases only was there an excess of white blood-cells in the centrifuged deposit of the urine. In no case were there urinary symptoms.

Temporary diarrhœa due to laxatives.—In view of the high percentage of positive cultures obtained from females with persistent loose stools, observations were made on a group of healthy women in whom loose actions of the bowels were brought about by the use of laxatives (see table, series 10). This series consisted of 12 convalescent medical patients in reasonably good health. Their urines being first proved free from *B. coli* on culture, they were given sufficient aperients to cause the evacuation of loose stools for a period of three or four days. When the stools had been loose for at least three days, the urines were again cultured. In 1 case only was a positive culture obtained (at the second culture). This result is comparable with the 7 positive cultures from the 100 normal persons (series 1 and 2), and the 3 positive cultures from 40 constipated women (series 7). As it stands, the result is equivocal, but it may well be that, had the laxatives been given for a longer period, other cases in the series would have given a positive result.

It is commonly believed that excess of laxatives may cause a relapse in a patient who is recovering from or has lately recovered from an attack of urinary infection. This effect was tested on a female patient in whom the *B. coli* infection had been particularly obstinate. After a third course of treatment with mandelic acid the urine at length became sterile. After an interval of three days aperients were given sufficient to cause very loose stools for three days, but the urine cultured on the fourth day was still sterile.

B. coli IN THE URETHRA OF HEALTHY PERSONS

Observations were made on 35 persons. A group of 10 male medical students were instructed to pass a few cubic centimetres of urine into sterile jars without any preliminary cleansing of the glans. The whole of the urine was cultured in the usual way. No *B. coli* were grown from any of these specimens (see table, series 4).

From 25 females with normal bowel and urinary function Mr C. K. Vartan, gynæcologist, kindly obtained swabs for me from the lowest ½ in of the urethra, using ordinary sterile throat swabs These were cultured in melted litmus lactose agar, from which plates were immediately poured *B coli* were grown in 4 cases (see table series 5) but in 1 of these only two colonies were grown This result is in contrast with the observations previously described, which showed that the vulva in most cases is heavily infected with *B coli* (see table series 4) It appears from this that in ordinary circumstances relatively few of the organisms from the vulva find their way to the urethra To complete these observations it would be advisable to compare the bacteriology of the urethra in females with persistent loose stools and in those with normal stools

DISCUSSION OF RESULTS

It is difficult to assess the significance of the presence of *B coli* in the urine of 7 of the apparently normal control series of 100 persons It is to be noted that there was no excess of white blood cells in the centrifuged deposit of the urine of any of these cases, and that of the cases re examined all were subsequently negative without having had treatment in the meantime It is possible that healthy persons excrete coliform organisms in their urine from time to time and that this slight symptomless bacilluria may develop into a clinical infection if the bodily resistance is lowered or the virulence of the organism for some reason increased However this may be, it is clear that a positive urine culture alone is not necessarily evidence of a clinical infection of the urinary tract with *B coli*

Although the number of cases examined is too small to establish the point, the proportion of positive cultures in the series of constipated persons and in the series given excessive laxatives is so similar to the proportion of positive cultures in the control group that it seems justifiable to conclude that 6 2 per cent * of positive cultures is within the limits of normal health This figure contrasts with 19 positive cultures obtained from the urines of 36 females with persistent loose stools The difference between these two series is further emphasised by the fact that in only 4 of the former group was there a heavy growth of organisms as compared with 14 in the latter Further, in none of the positive cases from the normal group was there excess of white blood cells in the centrifuged deposit, as against 5 cases with excess of pus cells in the other series It is concluded from these observations that persistence of loose stools in females is an aetiological factor in *B coli* infection of the urinary tract

The absence of positive cultures from the group of males with diarrhoea is in striking contrast with the findings in the females It is suggested that this difference in the two sexes is due to the close anatomical relation of the anus to the external urethral meatus in the female Though it has been shown (see table series 6) that normally few organisms spread from the vulva to the interior of the urethra contamination of the perianal region is increased when the stools are persistently loose and in these circumstances infection is likely to be transferred to the urethra in the act of cleansing after defaecation for the usual direction of wiping is from behind forwards It follows that as a prophylactic measure any female with persistent diarrhoea and any patient under treatment for established urinary infection should be advised to reverse the direction tially the same as those of case 1. Case 5 showed a diminution of urinary volume for the first three days of the course of œstrogen injections These three days coincided with a heat wave and are the same days as the last three of case 7, who also showed a sudden drop in urinary excretion Cases 13 and 14 have also been omitted from the figure, for the results were the same as in the other menopausal subjects It will be seen from these results that no significant change in urinary volume followed the administration of œstrogens

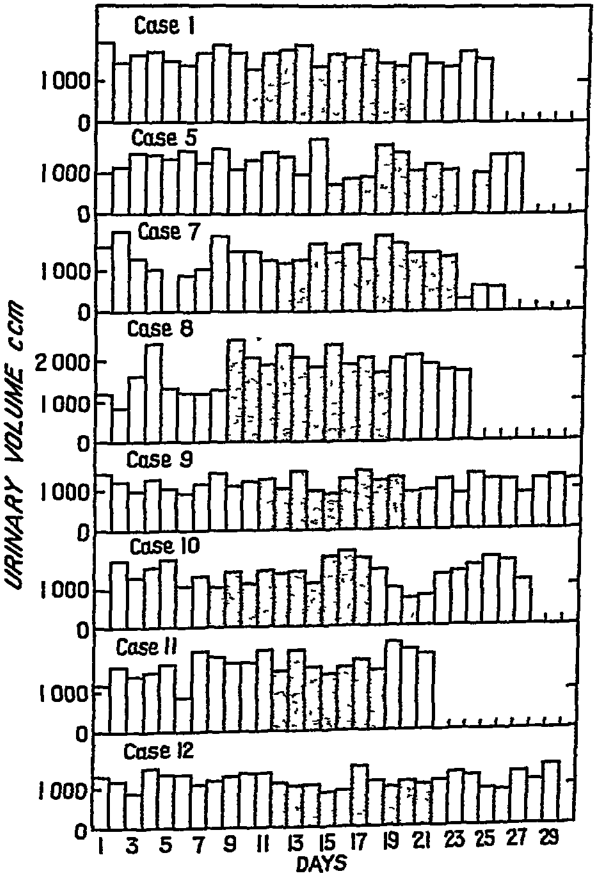
---

* The figure 6 2 per cent is calculated from 11 positive cultures in a total of 176 persons (see table series 1 2 3 6, 7, and 10)

COMMENT

Estimation of the urinary volume is at best a crude method of observing changes in water balance. Even when, in addition to extra fluid intake, the fluid and salt content of the diet is rigidly fixed, and when temperature variations are not great, much fluctuation may be observed in the urinary volume of patients in hospital, and only relatively gross changes should be regarded as significant

On theoretical grounds it might be expected that a change of water balance could take place in certain human subjects after the injection of œstrogens Friedlander, Laskey, and Silbert (1936) claimed that there was a reduction of blood volume in castrated cats and castrated women, and that the blood volume could be brought back to normal by administration of œstrogens, and such a phenomenon might well be accompanied by temporary retention of water Aykroyd and Zuckerman (1938) observed retention of water with increase in weight when rhesus monkeys were injected with œstrogens, the extra water being accommodated in the swollen sexual skin. The action of œstrogens in this case appears to be a local increase of capillary permeability Though the sexual skin is absent in the human, increased capillary permeability might account for changes of water balance after œstrogen injections Until these two possibilities have been eliminated, it appears unwise to suggest that the œstrogens inhibit a diuretic principle of the anterior pituitary



Effects of intramuscular injections of œstradiol benzoate 100,000 I.B.U daily for ten days on the volume of urine secreted Each column represents the amount of urine secreted in 24 hours, the dark columns showing the period of injections

SUBJECTS TESTED

Case No	Sex	Age	State of endocrine system
1	M	39	Normal
2	M	22	„
3	M	16	Undeveloped gonads
4	F	35	Normal menstruation
5	F	45	„ „
6	F	19	„ „
7	F	54	Menopause 6 years
8	F	61	„ 10 „
9	F	52	„ 4 „
10	F	49	„ 1 year
11	F	46	Castrate 25 years
12	F	46	„ 4 „
13	F	48	Menopause 9 months
14	F	52	„ 5 „

The observations on the blood volume of castrates and on the sexual skin of monkeys suggest that women who had been castrated or who suffered from gonadal deficiency would be the most likely subjects to show water retention with the œstrogens Shapiro's results were obtained on "cases of amenorrhœa or women past the menopause" Eight of our subjects came into this category However, we have been unable to detect any significant change in urinary volume after the administration of œstrogens

SUMMARY

After the injection of œstrogens no change could be detected in the urinary volume of women before and after the menopause, of castrate women, or of men

We thank Miss Simmonds for the careful control of diets, and Sir Kay Menzies, medical officer of health for the County of London, for permission to publish these observations

REFERENCES

Aykroyd, O. E, and Zuckerman, S. (1938) *J Physiol* 94, 13
Friedlander, M, Laskey, N., and Silbert, S (1936) *Endocrinology* 20, 329.
Shapiro, B G (1938) *Lancet*, 2, 1457

CREMATION IN WAR-TIME —Local authorities have been *informed that the Government* does not intend to permit civilian air-raid victims to be cremated. The Government considers that it may not be possible in war-time to carry out the present system of certificates which, if an inquest is held, requires a coroner's certificate Though town clerks will take the place of coroners in dealing with people killed in air-raids, they have not been *granted powers to give certificates* authorising cremation

ARTIFICIAL PNEUMOPERITONEUM

IN PULMONARY TUBERCULOSIS AND PREGNANCY

By JOSEPHINE BARNES, M.A., B.M. Oxfd, M.R.C.P.

LATE HOUSE SURGEON, OBSTETRIC UNIT, UNIVERSITY COLLEGE HOSPITAL, LONDON

IT has long been known that pregnancy tends to have an adverse effect on active pulmonary tuberculosis. Although in many cases the condition improves during pregnancy, the patient gaining weight and feeling well, after delivery there is often a rapid deterioration; the temperature and pulse-rate rise on the third or fourth day after delivery, the lesions spared, and the patient goes rapidly downhill. This acute "flare-up" follows not only delivery at term but also miscarriage after about the sixteenth week. Hence it is considered inadvisable to terminate cases of active pulmonary tuberculosis after the twelfth week.

The reason for this acute flare-up, which appears to be independent of anæsthetics in labour or post-partum hæmorrhage, seems to be the opening up of the lesions as a result of the rapid descent of the diaphragm, "splinted" during pregnancy by the enlarging uterus; hence, if some method of preventing this rapid descent after delivery could be devised, an acute flare-up might be avoided. Such methods as the application of a sand-bag on the abdomen or of a tight abdominal binder after delivery have been tried but are not very effective.

ARTIFICIAL PNEUMOTHORAX

Patients with inactive lesions or with lesions adequately controlled by artificial pneumothorax are relatively immune from ill effects following delivery. Rist and Jottras (1935) published a series of 132 cases of pulmonary tuberculosis and pregnancy treated by artificial pneumothorax; 58 had had an artificial pneumothorax induced before pregnancy began, and the remaining 74 had the induction during pregnancy. The former group showed much better results. Rist and Jottras conclude that artificial pneumothorax protects the great majority of patients from the flare-up of the lesions which tends to follow delivery, and that the earlier the induction of artificial pneumothorax the better the result. They also state that the prognosis, usually so grave in pregnancy and pulmonary tuberculosis with active lesions, has been completely modified by collapse therapy.

ARTIFICIAL PNEUMOPERITONEUM

In certain cases, however, and in the case about to be described, artificial pneumothorax cannot be induced; it was therefore decided to try to prevent descent of the diaphragm and a flare-up of the lesions by the induction of artificial pneumoperitoneum immediately after delivery.

Pneumoperitoneum has long been used in the treatment of intestinal tuberculosis. Mosetig-Moorhof (1893) and Nolen (1893) published satisfactory cases. Banyai (1931) published a series of 44 cases and suggested that the procedure might be beneficial in cases of pulmonary tuberculosis. In 1934 Banyai published a further series of 100 cases, with symptomatic relief in 71 per cent., and again suggested the use of this method, in combination with phrenic avulsion, for the treatment of pulmonary tuberculosis.

Vajda (1933) described a case in which hæmoptysis was stopped by the induction of pneumoperitoneum. Kugelmeier (1935) described a similar case; here pneumoperitoneum was successful when phrenic avulsion had failed. Centoscudi (1936) reported 19 cases of pulmonary tuberculosis treated by pneumoperitoneum and recommended the combination of it with surgical paralysis of the diaphragm.

Trimble and Wardrip (1937) described the technique of pneumoperitoneum. They first tried it as a result of observing the good effect of pregnancy on pulmonary tuberculosis, presumably due to splinting of the diaphragm. They found that cough and sputum were diminished, the patient was made more comfortable, and cavities closed when other methods had failed.

Banyai (1938a) described 150 cases of pulmonary tuberculosis treated by pneumoperitoneum alone. The technique is easy, safe, and simple. After emptying the bladder, the abdominal wall is punctured three fingers-breadth below and to the left of the umbilicus, and 00–1000 c cm. of air are admitted initially, refills of 800–1500 c.cm. being given at intervals of a week. Application of an abdominal binder raises the diaphragm more. Symptomatically the results are favourable, but it was difficult to evaluate the results, for the procedure was used in an insufficient number of patients, all of whom had advanced disease. Banyai and Jurgens (1937) described 7 cases in which severe mediastinal emphysema developed as a result of inducing pneumoperitoneum by the subphrenic route. They therefore recommend the subumbilical route.

Banyai (1938b), as a result of comparative measurements of radiographs of the chest before and after pneumoperitoneum in 44 patients, has shown that the procedure causes a sustained elevation of the diaphragm, if this is not fixed by adhesions. The maximal elevation was greater than that obtained by phrenic avulsion in a comparable group of patients. In 1939 Banyai published the results of 584 radiographic measurements showing that pneumoperitoneum substantially reduced the radiographic surface area of the lung—more than did phrenic avulsion—and that thus a therapeutic relaxation of the lung tissue was obtained, which was responsible for the beneficial results of the treatment.

Pneumoperitoneum has now a definite place in the treatment of pulmonary tuberculosis in cases where the other methods of collapsing the lung tissue are not available. It was thought, therefore, that the procedure might be used in active tuberculosis and pregnancy to replace the uterus after delivery by a comparatively large amount of air which would undergo slow absorption, and, by splinting the diaphragm, to prevent a flare-up of the lesions. The result in the case in which it was tried appears to be satisfactory.

DR. JORPES AND OTHERS: REFERENCES

Bergström, S, Jorpes, E, and Wilander, O. (1937) Skand. Arch.
Physiol 76, 175
Best, C H. (1938) *Brit med J* 2, 977
— and Solandt, D. Y (1938) *Lancet*, 1, 130
Bostrom, K G, and William-Olsson, L. (1938) *Ibid*, 2, 78
Chargaff, E, and Olson, K B. (1938) *J biol. Chem.* 122, 153.
Crafoord, C (1937) *Acta chir. scand.* 74, 407.
— (1939) *Ibid*, 82, 319
Groth, K E (1939) *Surgery* (in the press)
— (1936) *Acta med scand.* 88, 440.
Hedenius, P (1937) *Lancet*, 2, 1186
Holmin, N., and Ploman, K. G (1938) *Ibid*, 1, 664.
Knoll, H., and Schurch, O (1938) *Ibid*, 1, 1387.
Lindgren, S, and Wilander, O (1939) *Nord Med.* 2, 1785
Arch klin Chir (Kongressonber. d d chir Ges) April,
1939 (in the press)
Magnusson, H. (1936) *Lancet*, 1, 666
Murray, D. G. W., and Best, C H. (1938) *Ann Surg* 108, 165.
— Jaques, L B, Perrett, T S, and Best, C. H. (1937)
Surgery, 2, 163.
Olovson, T. (1939) *Acta chir scand.* 82, 487.
Acta ophthalmol 16, 502.
C. H. (1938) *Lancet*,

CASE RECORD

The patient was aged 23 and had had three normal confinements. She was first seen in the antenatal department of University College Hospital on March 23, 1939, when she was twenty-seven weeks pregnant. She complained of cough and sputum of six months' duration. She had had night sweats, poor appetite but no hæmoptysis. She was sent to see Dr Andrew Morland; the only physical signs in her chest were a few râles at the right base but a radiogram taken at this time showed some loss of translucency at the right chest with infiltration at the right apex and at the left upper zone.

On May 6, 1939, she was admitted to the isolation ward of the Obstetric Hospital. Another radiogram showed little change in the lesions. She was treated by strict rest in bed and with Sanocrysin. Her sputum was negative, and the blood sedimentation-rate 33/100 mm./hr. She was afebrile throughout the antenatal period. There was slight toxæmia of pregnancy, shown by raised blood pressure, but no œdema or albuminuria. The renal function tests were all normal. Artificial pneumothorax was considered impracticable since the radiogram showed bilateral active lesions and the pregnancy was by then well advanced. It was therefore decided to treat her on general lines and to induce artificial pneumoperitoneum after delivery.

On July 4, 1939, she was delivered of a living female infant. The labour was spontaneous and lasted only an hour and twenty minutes. Immediately after the delivery of the placenta pneumoperitoneum was induced. The abdominal wall just above and to the left of the umbilicus was infiltrated with a 2 per cent. solution of Novocain; a primary artificial-pneumothorax needle was pushed through the abdominal wall at this point and could be felt definitely to pass through the parietal peritoneum, and 3000 c.cm. of air was slowly admitted to the peritoneal cavity from an artificial pneumothorax apparatus. The air passed in freely and easily, and the patient showed no signs of distress, was not dyspnœic, and experienced no pain. At the end of the induction the upper abdomen was slightly distended in the flanks and was tympanitic on percussion. An abdominal binder was applied.

The patient's progress was satisfactory. There was a modified flare-up in the form of a rise of temperature and pulse-rate from the fourth to the tenth day after delivery; the highest temperature reached was, however, only 99.8° F., and the patient had no symptoms. Breast-feeding was not permitted, and the secretion of milk was stopped by the routine treatment.

After-treatment consisted of continued rest in bed, and the injections of sanocrysin were given. The pneumoperitoneum was not refilled, for it was regarded as only a temporary measure to prevent the immediate adverse effects of delivery and was not intended to be permanent. The abdominal distension gradually subsided and entirely disappeared a week later.

Subsequent progress has been satisfactory, and the patient is now free from symptoms and afebrile. A total of 4.50 g. of sanocrysin has been given. A radiogram of her chest, taken on July 26, shows an improvement in the condition of the lesions on both sides. The level of the diaphragm is about normal. The patient is now awaiting transfer to a sanatorium.

COMMENTS

This case is recorded because it was apparently the first of its kind and in the hope that others may induce artificial pneumoperitoneum in similar cases of active pulmonary tuberculosis and pregnancy when the lesions cannot be controlled by the preferable method of artificial pneumothorax. Although the effect was apparently beneficial and the patient showed only a very slight flare-up after delivery, as shown by the rise of temperature and pulse-rate, it cannot be argued that the pneumoperitoneum prevented a more severe flare-up until results are obtained in a series of cases. The results of delivery in such cases are, however, often so disastrous that any method which holds out a hope of preventing them is worth a trial. There was no evidence here that it was necessary to maintain the pneumoperitoneum permanently, but there appears to be no reason why this should not be done in a suitable case. Induction of pneumoperitoneum before delivery seems to be impracticable. Stokes (1938) has pointed out that pneumoperitoneum is contra-indicated in cases with a rigid diaphragm, severe dyspnœa, emaciation, or a thick-walled cavity; but, if none of these conditions is present, the method is simple and easy and appears to be attended by no great risks.

SUMMARY

The acute flare-up of pulmonary tuberculosis after parturition is apparently due to opening up of the lesions as a result of rapid descent of the diaphragm. This can be prevented by artificial pneumothorax.

A case is described in which, artificial pneumothorax being impracticable, artificial pneumoperitoneum was induced immediately after delivery of the placenta. The patient's subsequent progress was satisfactory.

My thanks are due to Prof. F. J. Browne and Dr Andrew Morland for their help and encouragement and for permission to publish notes of this case.

REFERENCES

Banyai, A. L. (1931) *Amer. J. med. Sci.* 182, 352.
— (1934) *Amer. Rev. Tuberc.* 29, 603.
— (1938a) *Tubercle, Lond.* 19, 176.
— (1938b) *Amer. J. med. Sci.* 196, 207.
— (1939) *Arch. Surg., Chicago,* 38, 118.
— and Jurgens, G. H. (1937) *J. thorac. Surg.* 6, 310.
Centocudi, C. (1938) *Riv. Pat. Clin. Tuberc.* 10, 52.
Kuplander, I. M. (1935) *Beitr. Klin. Tuberk.* 87, 272.
Mosetig-Moorhof, A. von (1893) *Wien. med. Pr.* 34, 1.
Nolen, W. (1893) *Ned. Tijdschr. Geneesk.* 29, 801.
Rist, E., and Jottras, L. (1935) *Bull. Acad. Méd.* 113, 610.
Stokes, J. B. (1938) *Illinois med. J.* 73, 137.
Trimble, H. G., and Wandrip, B. H. (1937) *Amer. Rev. Tuberc.* 36, 111.
Vajda, L. (1933) *Z. Tuberk.* 67, 371.

ANGINA IN ALEUKÆMIC LEUKÆMIA

By J. B. L. TOMBLESON, M.D. Lond., D.P.H.
ASSISTANT MEDICAL OFFICER AT THE SOUTH-EASTERN HOSPITAL, LONDON COUNTY COUNCIL

ACUTE leukæmia varies in form and course. The typical blood picture may never develop and the diagnosis may be difficult (Forkner 1937, Abt 1937, Hart 1938). The following case illustrates these points. Its other features include leukæmic angina which sometimes simulates diphtheria, and an extreme leucopenia that was nevertheless compatible with temporary recovery.

CASE RECORD

A girl of 19, a shop assistant, was admitted to the South Eastern Hospital on Aug. 30, 1938, certified as suffering from diphtheria. She had a history of sore throat, headache, left-sided otalgia, cervical adenitis and nasal discharge of some ten days' duration. It was later discovered that pallor and left-sided otalgia had been present some six weeks before, and that there had been excessive loss at her last menstrual period. She had not apparently been taking any drugs, and her family history yielded nothing relevant. Cultures of the throat were

BLOOD-COUNTS IN A CASE OF ALEUKÆMIC LEUKÆMIA

Date in 1938	Hb (per cent)	Red cells (mill)	Colour-index	White cells	Neutrophils (per cent)	Lymphocytes (per cent)	Total neutrophils	Total lymphocytes	Monocytes (per cent)	L/N ratio	Remarks
Aug. 31	24	1 05	1 14	250	4	92	10	230	—	23 0	Slight poikilocytosis and polychromasia Count done on 50 cells Lymphoblasts 4 per cent Nucleated red cells 28 per 100 white cells
Sept 2	30	1 50	1 0	480	—	—	—	—	—	—	Reticulocytes less than 0 5 per cent Red cells appear normal
" 4	31	—	—	—	—	—	—	—	—	—	—
" 7	35	1 50	1 17	700	—	—	—	—	—	—	Differential count mainly lymphocytes Reticulocytes 1 2 per cent Platelets very scanty
" 12	38	—	—	1400	24	76	345	1055	—	3 02	Two nucleated red cells per 100 white cells
" 14	31	1·41	1 11	1050	49	47	514	494	4	0 96	Slight anisocytosis and polychromasia Platelets moderate numbers Reticulocytes 5 6 per cent Very occasional nucleated red cells
" 21	44	2 41	0 9	1900	45	50	855	950	3	1 11	Eosinophils 2 per cent Some anisocytosis and polychromasia
" 28	74	3 62	1 02	3200	63	32	2016	1024	3	0 51	Reticulocytes 4 8 per cent, eosinophils 1 per cent, basophils 1 per cent Some anisocytosis, slight poikilocytosis, and polychromasia
Oct 12	88	4 30	1 02	7000	64	30	4480	2100	5	0 49	Platelets abundant Reticulocytes 1 4 per cent; neutrophil myelocytes 1 per cent Slight anisocytosis
Nov. 14	64	2 75	1 1	29,000	—	100	—	29,000	—	—	No polymorphs seen in counting 300 cells The lymphocytes include a large number of early forms with some lymphoblasts
" 26	62	3 53	0 88	18,600	0 5	99 5	93	18,507	—	199	Lymphocytes immature with about 50 per cent of blast cells

Hb = hæmoglobin. L/N ratio = lymphocyte-neutrophil ratio

said to have been negative for diphtheria on Aug 23 and 26 and positive on Aug. 29

On admission her general condition was very poor; much pallor and fœtor oris, temperature 102° F, pulse-rate 100, respiration-rate 22; fauces very congested, with thick membrane covering left tonsil and left pillars; ulcerated crusted lesion on columella and round left nostril; bilateral moderate enlargement of cervical glands, but no adenopathy elsewhere; cardiac basal systolic murmur; liver enlarged two fingers-breadth below costal margin, spleen not palpable but area of splenic dullness increased

She was given 184,000 units of anti-diphtheria serum by intramuscular and intravenous injection. A blood-count the next morning showed severe anæmia and leucopenia (see the accompanying table), and although repeated cultures of throat and nose were negative for the Klebs-Löffler bacillus and hæmolytic streptococci, a direct smear of the fauces revealed Vincent's organisms A course of Pentnucleotide (120 c cm), followed by a blood-transfusion of 450 c cm, and iron in large doses with arsenic was given, but the ulceration of throat and nose remained indolent There was slight hæmorrhage from the fauces, and the tourniquet test of Rumpel-Leede was positive

On Sept. 6 a second blood-transfusion (of 500 c cm.) was given, and the next day Ventriculin was started in daily doses of 30 g. by mouth By this time the general condition had begun to improve, the faucial slough now began to separate, and the spleen became palpable On the 10th purulent right otorrhœa appeared, but it lasted four days only. On the 13th the patient complained of severe pains in the hips and thighs, lasting five days, which had been preceded for the last week by proteinuria The pains and the proteinuria were at the time attributed to serum disease despite the absence of a serum rash, but similar pains in this situation sometimes occur in leukæmia

The patient now made steady progress Other investigations showed normal gastric secretion, normal red-cell fragility, and no excess of serum bilirubin The blood-count returned to within normal limits by the time of discharge on Oct 20, and she was told to report in a month

On Nov. 14 the blood-picture of leukæmia was first clearly shown. A week later she had a return of sore-throat and fever and was admitted to Lambeth Hospital There was much bilateral adenitis, the spleen was enlarged down to the umbilicus, and the blood-count was as shown in the table Right otitis media recurred with rapidly increasing cachexia, and she died on Dec 3 The whole illness had lasted just under five months

Necropsy showed enlarged cervical and axillary glands, enlarged liver (76 oz.), enlarged spleen (22 oz), and extensive nasopharyngeal infection Unfortunately no sections were taken for histological examination

DISCUSSION

At the outset the possible diagnosis was Vincent's angina or some other faucial sepsis, agranulocytosis, diphtheria aplastic anæmia or aleukæmic leukæmia The discovery of Vincent's organisms was suggestive, but the general condition of the patient made this unlikely as sole cause, for the mark of Vincent's angina is the mildness of the constitutional symptoms (Rolleston 1929) Lesions of mucous membranes in leukæmia are usually due to leukæmic infiltration, they become broken down and secondarily infected and are not primarily due to sepsis as a rule (Abt 1935) The presence of Vincent's organisms in the stomatitis associated with leukæmia is well recognised, but their almost invariable presence in the faucial lesions has been emphasised by Ronaldson (1928)

Agranulocytosis, though possible in view of the angina and the extreme leucopenia, could be excluded on the severity of the anæmia and the deficiency of platelets (Vaughan 1936) Besides, no history of any exciting cause could be elicited

The resemblance to hæmorrhagic diphtheria was close there were pallor a membranous lesion of the nasopharynx cervical adenitis, apparent nasal excoriation, and an enlargement of the liver such as is found in early cardiac failure There was also the history of a culture positive for diphtheria though this may perhaps be discounted for in Ronaldson's (1928) experience of such cases the organisms obtained are not virulent Sabrazes and Saric (1935) also recorded a case of leukæmia with a positive culture but mentioned no test of virulence

The simulation of aplastic anæmia by aleukæmic leukæmia has been noted in children and adults (Livingstone 1932, Weber 1932 Weber and Weisswange 1933, Akerrén 1932) Such cases of apparent aplastic anæmia develop, after six to eight months, the blood changes of leukæmia, or the patient may die rather suddenly, a leukæmic pathology being demonstrated at autopsy The initial period is characterised by a hyperchromic anæmia, thrombopenia, and leucopenia, with agranulocytosis and large immature leucocytes These features were all present in the case described, and it is the last fact which points to the true diagnosis of leukæmia rather than aplastic anæmia and can often only be demonstrated by careful and repeated examination of the blood Sternal puncture, in the absence of other evidence, can be relied on to distinguish the two conditions and would have been performed on this patient if, after the first fortnight, her rapid apparent recovery had not made it seem unnecessary

There are two other points of interest in this case (1) the extreme degree of leucopenia which is among the lowest counts recorded (Cooke 1938), and (2) the recovery from such a low count to a normal general condition and blood picture after blood transfusion and symptomatic treatment (Hart 1938, Abt 1937, Penati 1937) The ratio between lymphocytes and neutrophils also returned to normal, which is again unusual, for this ratio, if once raised is said to remain so

The extreme leucopenia and anæmia may, as suggested by Sabrazes and Saric (1935), have been due to toxæmia affecting the bone marrow and not to the leukæmic process Evidence in favour of this is the very slow response to treatment until the ulceration of the nose and throat had regressed, when the response became very rapid Hart (1938) noted a similar finding

The conclusion to be drawn from this case is that in anginal conditions which may at first sight resemble diphtheria, and in which Vincent's organisms may be demonstrated a blood count showing anæmia and leucopenia should strongly suggest a diagnosis of acute leukæmia This will be confirmed by the coexistence of thrombopenia and the presence of immature leucocytes, whose detection may require a careful search Apparent recovery will prove to be only temporary

SUMMARY

A case of acute leukæmia is described, which showed an unusual degree of leucopenia in the aleukæmic phase with temporary recovery of the general condition, followed by death The initial diagnosis and the resemblances to diphtheria and aplastic anæmia are discussed

I am indebted to Dr G W Ronaldson medical superintendent of the South Eastern Hospital, for his advice and for permission to publish this case and to Dr T K Owen assistant pathologist at the Lewisham Group Laboratory, for the reports on the blood examinations

References at foot of next column

ANALYSIS OF THE NORMAL T WAVE

By Athelstane Hill, M D Camb , M R C P , D P H

CARDIOLOGIST TO PAIGNTON AND DISTRICT HOSPITAL AND
TO NEWTON ABBOT HOSPITAL

The T wave was analysed in the same way, and from the same materials, as the Q R S and P deflections (Hill 1938, 1939) The results are shown in the accompanying charts

In this subject there is evidence of slight activity immediately after the Q R S deflection , the voltage is very small and persists practically unchanged till about 0·08 sec later, when the voltage gradually rises, but still with little change in the distribution, which is shown in fig 1 The most positive of the observed points is at the lower border of the sixth left rib just internal to the nipple line , the most negative is over the upper border of the sixth right rib, 3 cm internal to the nipple line, and at a rather higher level than the most positive point Fig 2 shows the distribution about 0 06 sec later The positive and negative points are as before, but the negative area is much more widely diffused over the whole of the right side of the chest About 0 06 sec later the distribution is as shown in fig 4 , the negative point has now shifted to the corresponding point on the left side, and the left half of the back is relatively less negative than before Between these last two phases there is a short transitional phase, shown in fig 3 After the phase shown in fig 4 the voltage quickly falls, and a small U wave follows

To make the following tentative explanation clear, let us again think of the contraction wave as a small battery travelling along the muscle with its positive pole in front and its negative pole behind When an insulated strip of cold blooded muscle is used, it is evident that the familiar primary deflection will be produced while the wave is lying between the two electrodes The reverse wave—which, though often figured as equal in voltage and duration, and immediately following the primary wave, is really flatter and broader (Lewis 1925) and, when cooled cardiac muscle is used, may be delayed by as much as 2 sec (Burdon Sanderson 1879)—must be due to a secondary (anabolic) wave of opposite sign following in the wake of the first, like a small battery with its negative pole in front and its positive pole behind But in warm blooded muscle anabolism depends intimately on blood supply , and during systole in the living animal the supply to the ventricular myocardium is suspended till the pressure in the coronary arteries exceeds the intraventricular pressure Presumably relaxation everywhere follows contraction at a definite interval and so will begin at the

---

DR TOMBLESON REFERENCES

Abt A F (1935) In Diseases of Blood (von Pfaundler M and Schlossmann, A) London vol II p 217
— (1937) Med Clin N Amer 21, 69
Akerrén, Y (1932) Acta pædiatr Stockh 13 301
Cooke J V (1938) In Practice of Pediatrics (Brennemann J) Hagerstown vol III p 17
Forkner C E (1937) Arch intern Med 60 543
Hart F D (1938) Lancet 1 1441
Livingstone J L (1932) Proc R Soc Med 25, [illegible]
Penati F (1937) Minerva med [illegible]
Rolleston J D (1929) Acute Infectious Diseases 2nd ed London p 83
Ronaldson G W (1928 29) Annual Report of the Metropolitan Asylums Board London 1 243
Sabrazes J and Saric R (1935) [illegible] Paris [illegible]
Vaughan J M (1936) The Anæmias 2nd ed London [illegible]
Weber F P (1932) Quart J Med 1, [illegible]
— and Weisswange W (1933) Proc R Soc Med 26 [illegible]

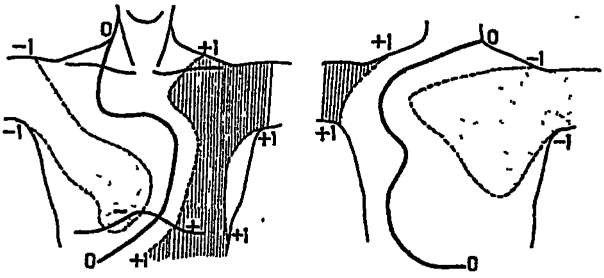


FIG. 1—Distribution of T wave about 0 08 sec after the Q R S deflection Total range about 0·4 millivolt. Contour lines marked in decimillivolts

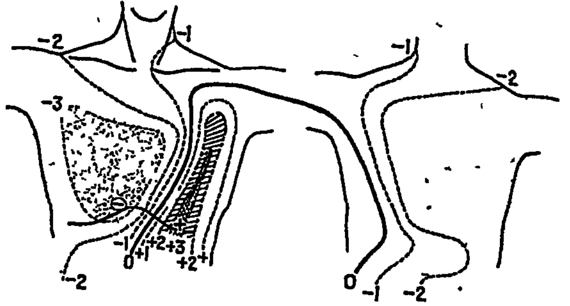


FIG. 2—Distribution of T wave about 0 06 sec later than fig. 1 Total range about 0 8 millivolt

endocardial side of the apices and spread outwards and towards the base, like contraction; but the relaxed inner layers will remain compressed by the intraventricular pressure till the outer (epicardial) layers overlying them have also relaxed, when the coronary supply will return to the fully relaxed area, penetrating from without inwards. As it penetrates it will excite anabolism, and thus there will be developed in each area, in the same order as the development of full contraction, an anabolic wave of opposite sign to the contraction wave, but travelling more or less in the opposite direction, and at a rate dependent not on simple conduction but on hydrodynamic factors—e g., coronary pressure, arterial and capillary resistance, and viscosity of blood The epicardium will become positive and the endocardium negative, and we should thus expect a succession of phases bearing a general resemblance to those of systole but each of much longer duration and so overlapping the next.

It is perhaps fanciful to try to correlate the phases with particular events, especially since no accuracy of detail can be claimed for these figures, but the spread of relative positivity to the back of the liver in the transition phase is rather suggestive of onset of activity at the base of the left ventricle, and the shift of the negative pole to the left in fig 4 of cessation of activity near the apex of the right ventricle—not because anabolism has stopped, but because the wave has passed right through to the endocardium in that region.

The gradual rise of voltage is to be explained not by gradual onset of anabolism but by a progressive decrease in the resistance of the circuit. Ischæmic muscle is a poor conductor; conduction steadily improves as the myocardium is flushed with blood The different position of the most negative point as compared with that during the Q R S deflection, when it was in the clavicular region, is due to the change in the auricles and their appendices; they are now fully relaxed and much nearer to the chest wall than at the beginning of systole, when they were fully contracted

This hypothesis may be formulated as follows. The normal T wave is caused by a wave of anabolism passing inwards through the ventricle walls and depends on the quantity and quality of the coronary supply and on the ability of the myocardium to utilise it This covers most of the observed variations in the T wave—e g., the inverted or diphasic wave of coronary stenosis; inversion in asphyxia, toxæmia, and pernicious anæmia, and alterations in fibrosis and diabetes mellitus It also explains the diphasic wave often seen in late hypertension and aortic stenosis, when the intraventricular pressure remains high in the left ventricle till relaxation is far advanced On this view the U wave must be due to a secondary wave of anabolism excited by a secondary flush of coronary blood; in short, it is a dicrotic T wave It is too small in this subject for analysis, but the deflections suggest activity in the apical region or perhaps throughout the whole of both ventricles.

These analyses show conclusively that the path of the stimulus is of prime importance in determining the picture produced This explains why an extrasystole arising in or near the septum will give a picture entirely different from that given by an extrasystole originating in the wall of the same ventricle (Barker et al. 1929). In the former case (as also in bundle branch block) the effect of unilateral stimulation of the septum must be taken into account Stimulation of the right side of the septum should make the blood in the right ventricle negative and that in the left ventricle positive This would give deflections of the "lævocardiogram" type, which would persist till the contraction wave had passed right through the septum If it now excites the left bundle-branch below the lesion or the arborisations at the left apex, a short "bicardiogram" followed by a second "lævocardiogram" will result. This would explain the features of the Q R S deflection in the common

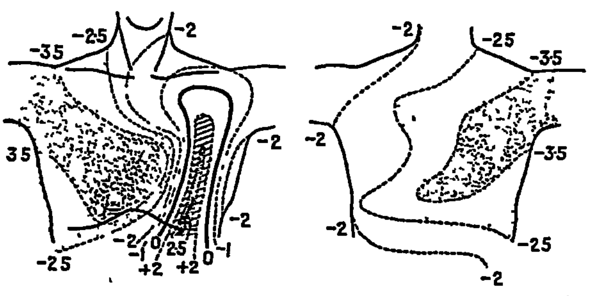


FIG 3—Short transitional phase between figs 2 and 4. Total range about 0 9 millivolt

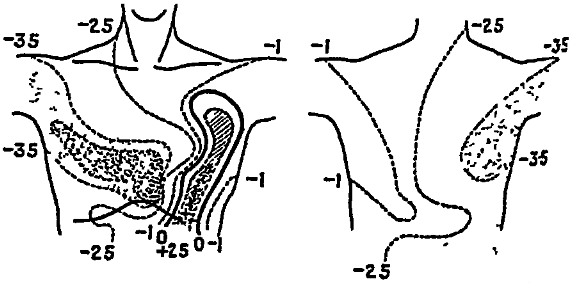


FIG 4—Distribution of T wave about 0 06 sec later than fig 2 Total range about 1 millivolt.

type of branch block the rest of the complex being a right ventricle or diphasic T wave

The left leg potentials have not been included in these charts, but they show that in all of them the loose ends of the lower contour lines at the back should be continued across the left flank (turning back when necessary) to join up with their corresponding numbers in front

To make really accurate charts, many more leads from the front of the chest would be needed and many precautions which are impracticable without special facilities There should be a timing signal, connected with the pulse to give accurate synchronisation, all leads should be taken at the same phase of respiration, the same posture and at one sitting Even so there would be other possible sources of error But the present charts, defective as they are, will suffice to support the main conclusion, that in taking an electrocardiogram we are tapping a current running round the chest wall and are approximately registering the potential differences between the points of application of the electrodes, and that these depend on the path of the stimulus and the anatomy of the paths of low electrical resistance from each side of the site of activity to the surface through the præcordium, liver, auricles, and great veins

SUMMARY

(1) Charts of the normal T wave show that it develops in successive phases

(2) It is *suggested* that it is due to a wave of anabolism travelling inwards through the ventricular myocardium with the advance of the returning coronary supply, and that the normal U wave is a dicrotic T wave

(3) The features of the common bundle branch block electrocardiogram are discussed

REFERENCES

Barker, P S, Macleod, A G Alexander, J and Wilson, F N (1929) *Trans Ass Amer Phys* 44 125
Burdon Sanderson, J (1879) *J Physiol* 2 384
— (1930) *Ibid*, Aug 19 p 115
Hill A (1938) *Lancet* 2 1110
Lewis, T (1925) Mechanism and Graphic Registration of the Heart Beat 3rd ed, London, p 54

EXPECTANT TREATMENT OF GAS-GANGRENE

By H A Brittain, M Ch Dubl, F R C S
ORTHOPÆDIC SURGEON TO NORFOLK AND NORWICH HOSPITAL

The incidence of gas gangrene infection varies with the nature of the country Nitch,[1] in Choyce's "System of Surgery" states that gas gangrene is practically unknown in desert and mountainous regions, and Trueta[2] encountered only one case of gas gangrene in treating 1073 fractures during the Spanish war As Spain consists largely of mountains and arid plains, this is what one would expect In low lying agricultural districts, however, gas gangrene is relatively common, and in our fracture service we have had four cases in the last six weeks In two of our four cases, amputation had to be undertaken, and the third patient died even after amputation With the fourth patient a slightly different technique was used

The patient was a labourer, aged 10, who fell from a height on to some cement, and sustained a compound fracture of the right tibia and fibula The wound did not appear to be grossly contaminated, but in view of our recent experiences the following expectant treatment was adopted

Complete excision of the wound was performed, and a careful "debridement" carried out The anterior tibial vessels were found to be lacerated at the site of the fracture, and these were sutured A small protruding fragment of the tibia was removed, and the wound was irrigated with hydrogen peroxide and left widely open The fracture was reduced by manual manipulation, and a plaster cast was applied over wool packing extending above the knee The plaster was padded on account of the additional aid to the circulation A window was cut over the wound, and the plaster was bivalved A post-operation radiogram showed a reasonably good reduction A prophylactic dose of 12,000 units of anti gas-gangrene serum was given, four times as large as the usual dose, and 1000 units of anti tetanic serum The wound was examined every two hours Twenty hours later a minute bubble of gas was expressed from the lower aspect of the wound, and a faint smell of gas gangrene was present The patient's temperature was 99 5° F and the pulse was slightly fuller A specimen of the discharge from the wound was taken, and the pathologist reported that *B welchii* were present The wound was explored immediately by a cruciate incision each limb of the cross being about six inches long The corners of the skin flaps were sutured back to the skin Several muscles were seen to be discoloured, and bubbles of gas were present The muscles particularly affected were the tibialis anticus and the extensor digitorum longus These, and all suspicious muscles, were completely excised throughout the length of the wound A Steinmann's pin was inserted through the os calcis, and the limb was placed on a Thomas splint The wound was left widely open and irrigated hourly with hydrogen peroxide alternating with acetic acid, the latter to provide an acid medium and to prevent the formation of an exudate A fan was also arranged to provide a passage of air and to keep flies away and 10 000 units of anti gas gangrene serum were given twice a day Four hours after the operation there was still oedema along the wound and along the peronei muscles, but no crepitus could be elicited Twelve hours later the patient's general condition had improved Four days later his circulation was good and there was no evidence of gas gangrene The flaps of skin were viable, and the sutures were removed The wound was cleaned with eusol, and vaseline gauze and plaster were applied The wound now appears to be granulating well and there seems no reason to doubt that it will take the usual course of a compound fracture treated by the Winnett Orr method

The difficulty of detecting gas gangrene under plaster was pointed out in a leading article in The Lancet on Sept 16 (p 656) Undoubtedly, if the presence of constitutional signs only determines the removal of a plaster and examination of a wound it will be too late to save any infected limb It is suggested that forty eight hours' expectant treatment, either by constant examination of the wound through a window in a plaster cast, or with the limb on a Thomas splint, may be instrumental in saving some limbs that might otherwise have to be amputated

---

[1] Nitch C A R A System of Surgery vol 1 p 217
[2] Trueta J *Lancet* 1939 1, 1452

"What do the so called great things of life count for in the end the fashion of a man [illegible] the benefit of his fellows It is the little things that give its savour or its bitterness to life the little things that direct the currents of activity the little things that alone really reveal the intimate depths of personality —Havelock Ellis in Selected Essays Everyman Edition, 1936

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF ORTHOPÆDICS

THE President, Mr T P. McMURRAY, took the chair for a crowded meeting of this section on Oct 24. A lecture on the

Organisation of Treatment of Air-raid Casualties

was given by Dr JOSEP TRUETA, late director of surgery at the General Hospital of Catalunya, Barcelona That city, he said, had had its first taste of aerial bombardment in November, 1936, when 100 civilian casualties were admitted to his hospital after an air-raid Following this small beginning he and his staff had had great opportunities to develop their technique and organisation for dealing with casualties to suit the conditions of the new warfare, for Barcelona and adjacent towns and villages were subjected to over 340 raids He hoped that the lessons they had learned would be a help to those preparing for the same things in England now There were important differences between the effects of war on soldiers and civilians, in civilian surgery there was a much higher proportion of severe injuries owing to the devastating effect of high explosive in cities, and an absence of the relatively minor wounds caused by machine-gun and rifle bullets Morale and discipline were more difficult to maintain among civilians and the mixture of sexes and ages was yet another complication

Three main types of bomb were used The heavy 600 lb bomb, used mainly against military objectives, caused terrific damage both directly and indirectly by the collapse of buildings It could produce serious injury 200 yards from its site of explosion and its blast was directed chiefly upwards Concrete buildings nine stories high had been completely destroyed by one such bomb The light bomb was often used to terrorise the population, it exploded into small fragments of metal, often no bigger than a fingernail, which travelled horizontally and thus inflicted injury near the ground Wounds of the legs were therefore common and shock and hæmorrhage were severe, to be effective treatment ought to be given within two hours Dr Trueta had had very little experience of incendiary bombs because the enemy had found them ineffective on the stone and concrete houses of Barcelona and soon ceased to use them, at Guernica the story had been very different

There was a fallacy in the argument that it was safest to treat the injured in outlying hospitals and not in the cities; the main centres were heavily defended by anti-aircraft guns, balloon barrages and fighter planes, and were far less likely to be successfully attacked than the surrounding country. None of the main hospitals in Barcelona had been hit, whereas many of the outlying hospitals had been completely destroyed Moreover, the damage to communications often made it very difficult to evacuate the injured during or immediately after an air-raid The injured should be brought straight to the central hospitals as speedily as possible and the ambulances should be able to transport patients 5 miles in from 20 to 30 minutes Evacuation should be done after treatment, at leisure and at night

The first casualties to arrive after an air-raid were usually those injured in the streets and their wounds were often not serious: the serious injuries usually arrived when the surgeons were busy operating on these relatively minor cases Organisation, particularly within the hospital, was of the utmost importance The General Hospital had perfected a system Large hospital grounds allowing of one-way traffic for ambulances had been a great help Classification was the first essential and all cases should be put into one of five groups (1) Those patients who required immediate operation and would not be fit for evacuation afterwards. (2) Those who required immediate operation but could be evacuated soon afterwards (3) Those who required admission but no operation and could be evacuated later. (4) Those who needed only first-aid treatment, after which they could be sent to the base (5) Those who could go home after first-aid treatment. Those requiring operation should be distributed among the surgical teams according to the ability of the various surgeons and their state of fatigue At the General Hospital there had been six surgical teams, each consisting of eight men An ophthalmic specialist was of great value on account of the frequent injuries to eyes

Several main clinical types could be recognised The patient injured by a heavy bomb was pale, shocked and had a low blood-pressure, he was usually clearly conscious but (in contrast to the relatives) quiet; there was much crushing and laceration of the damaged tissues, particularly muscle Of these cases 32 per cent had multiple major injuries and the lower limbs were more frequently involved than the upper Injuries of the head and of the abdomen constituted about 8 and 9 per cent respectively of the total Open chest wounds were always serious and difficult to manage, these patients were very shocked and also often needed a partial pneumonectomy, spinal injuries were frequently associated, chronic infective sequelæ, such as bronchial fistula, were common There were several characteristic features of the injuries produced by light bombs The external wounds they inflicted were often small and out of all proportion to the serious internal damage inflicted, especially on muscles and nerves In fractures there was often gross displacement and yet very little pain This numbness, however, was not sufficient to do duty for an anæsthetic when the operation was done Compound fractures should be treated by the closed plaster method Open wounds of joints were more serious than compound fractures and almost always some degree of ankylosis resulted. In abdominal injuries the discrepancy between the size of the external wound and the extent of the damage to viscera was very great Many coils of intestine might be torn or the liver disrupted by one small fragment of a bomb. In abdominal surgery the time factor was of the greatest importance Injuries to the chest with a small external wound were often best treated expectantly by morphia and immobilisation. If operation became necessary the patient should be left with a pneumothorax as a help in controlling hæmorrhage Head injuries were often best transported straight to a neurosurgical centre In the crushing injuries produced by the collapse of buildings the clinical picture was dominated by a mixture of shock and concussion, the patient appeared indifferent to his surroundings Serious and frequent injuries were fractures, internal hæmorrhage, and collapse of the chest wall Immediate operation was often impossible on account of the shock

Dr. Trueta then returned to the subject of classification on an operative basis There were five main groups

(1) Those always requiring immediate operation (i) hæmorrhage, (ii) open chest wounds, (iii) great bruising and destruction of limbs, (iv) small penetrating abdominal wounds

(2) Those usually requiring immediate operation (i) closed depressions of the skull (ii) major wounds of the head, (iii) compound fractures caused by small bomb splinters, (iv) penetrating wounds of joints

(3) Those which could be evacuated to the base without operation (i) penetrating wounds of the skull caused by small splinters (ii) many compound fractures caused by small splinters (when there is no hæmorrhage, efficient immobilisation, no shock, and the base less than two hours' journey away), (iii) many injured by fallen masonry when there is no great shock, (iv) wounds of the face

(4) Those who should remain at the clearing station without operation (i) severe shock, (ii) closed penetrating wounds of the chest

(5) Those who may be operated upon if things are quiet and if other more deserving cases are not kept waiting, for example abdominal wounds caused by heavy bombs

In summarising, Dr Trueta said the patient should be taken to hospital as quickly as possible and all preliminary stages which might cause delay should be abolished For the same reason first-aid posts should only be established at the casualty hospitals A sound system of classifying cases was essential Only those cases should be operated upon in which there was a reasonable chance of recovery There should be an efficient organisation within the hospital so that the surgeon's energies were conserved and his abilities exploited to the patients' best advantage

DISCUSSION

The PRESIDENT congratulated Dr Trueta and stressed the importance of organisation, he hoped that some of the suggestions might be considered by those eminent beings, the group officers

Mr HARRY LEVITT asked for Dr Trueta's comments on the Marylebone scheme for mobile ambulance units to render first-aid at the site of a raid —Dr. TRUETA replied that at the beginning of the Spanish war there had been mobile units in Barcelona, but these and separate first-aid posts had been entirely given up, all injured should be brought straight to the casualty clearing hospitals

Prof C R GIRDLESTONE had been told elsewhere by Dr Trueta of his organisation for classifying the injured This he described All the patients were brought first into a large room where a second grade medical officer sifted out the minor injuries and transferred them to the first-aid post, the remainder passed on to another room where a medical officer of great judgment and experience (but not necessarily an operating surgeon) classified them and distributed the operation cases among the various surgical teams according to the principles already outlined by Dr Trueta Each patient was labelled with a coloured card according to his class.

Dr Trueta was next asked whether there had been any difficulty in obtaining enough plaster in Spain, the supply in England is apparently small He said that there had been no difficulty, plaster of paris was a Spanish national product In reply to a question about the proportion of cases needing radiographing before operation, Dr Trueta said that only exceptionally was it possible to take an X ray before operation except when things were quiet The sort of case in which it was essential was a hæmopneumothorax caused by a small bomb fragment It was seldom possible to do a deliberate final operation as a primary measure, in compound fractures, for instance, the fragments were fixed in as good a position as the circumstances allowed, and adjustments could be made in the course of the next few days after an X ray had been taken

Mr W ROWLEY BRISTOW proposed the vote of thanks to Dr Trueta He said that the principles outlined should revolutionise the organisation of the treatment of war casualties.

REVIEWS AND NOTICES OF BOOKS

British Encyclopædia of Medical Practice

(Vol XII) By Various Authors Under the general editorship of Sir HUMPHRY ROLLESTON London Butterworth and Co 1939 Pp 927 35s

THE twelfth volume of this now familiar book brings its review of modern medicine from A to Z to a close This volume covers T to Y, beginning with tetanus and ending with yellow fever Between these two extremes are many articles of general interest, including an excellent review of toxicology by G Roche Lynch and Donald Hunter, and an exhaustive account of trachoma by A F MacCallan The section on tumours fully covers the clinical and pathological features of benign and malignant growths and their effects on the body, but there are unfortunately no illustrations in this section Diseases and disorders of the uterus are dealt with by four authors under the headings of developmental abnormalities displacements, prolapse and tumours Leslie J Harris has contributed a very clear and concise account of the vitamins, including the vitamin deficiency diseases The volume also contains articles on tremor, tuberculosis and a general survey of tropical diseases A valuable cross index at the end of every section gives references to allied articles in other volumes of the encyclopædia The marginal notes are useful for quick reference or revision and are happily less numerous than in some previous volumes, where they often distracted the eye from the text The illustrations are good and well reproduced throughout The general standard of the book is such that we can look forward with confidence to the supplement to the encyclopædia, which the publishers promise will be ready at an early date

Urine

Examination and Clinical Interpretation By C E DUKES, M D Edin, D P H, pathologist to St Peter's Hospital for Stone, and to St Mark's Hospital London Humphrey Milford, Oxford University Press 1939 Pp 403 25s

THIS is the most complete and up to date work on urine examination Although a book of reference, it is readable There is a short illustrated historical introduction, followed by a complete account of the physical and chemical characters of normal and abnormal urines A section on microscopical deposits is followed by a description of bacteria and other parasites in the urine, and here there is a wealth of detail on bacteriological methods including media making But the best section is that devoted to hormone tests with excellent coloured plates showing Aschheim Zondek results The rest of the book deals with the excretion of vitamins, enzymes, drugs and poisons, urinary calculi and renal function tests

Textbook of Pathology

A Correlation of Clinical Observations and Pathological Findings. By CHARLES W. DUVAL, M.D., professor of pathology and bacteriology at Tulane University School of Medicine; and HERBERT J. SCHATTENBERG, M.D., associate professor of pathology and bacteriology at the school. London: D. Appleton-Century Company. 1939. Pp. 681. 35s.

THIS weighty students' textbook is well got up and profusely illustrated, but its text is a disappointment. A single example, taken at random, illustrates the standard of the book. To the subject of gangrene there are four references in the general index. On p. 26 gangrene is defined as a form of necrosis which has undergone drying (mummification), or has become moist and occasionally crepitant. On p. 33 it is mentioned as a special form of necrosis. On p. 174 the definition given on p. 26 is repeated, while on p. 349 the word gangrene occurs in brackets after the word necrosis. That is all the student will find about gangrene on first reference, but if he searches through the whole index systematically he will find scraps of additional information referred to in subheadings. Thus, under "Infarction—gangrene in," he will be referred to pp. 60 and 62. On p. 60 the word gangrene does not occur, but on p. 62 he will read the following rather disturbing note: "The essential factor in all infarcts is the necrosis. When tissues in external parts are infarcted the clinical designation is gangrene (fig. 54)." Fig. 54, incidentally, is a photograph of a consolidated lung.

This book lays claim to being a work on morbid anatomy. The authors say in the preface that the student should be thoroughly grounded in histopathology. It is difficult to see how anyone could get anything but the most hazy idea of the morbid anatomy or histology of gangrene from the above disjointed notes. And, unfortunately, the section on gangrene is typical of the whole.

Physiology and Pharmacology of the Pituitary Body

By H. B. VAN DYKE, head of the division of pharmacology, Squibb Institute for Medical Research, New Brunswick. London: Cambridge University Press. Vol. 2. 1939. Pp. 402. 22s. 6d.

THE rapid advance of endocrinology in the past fifteen years has produced a voluminous literature; this year two new specialist journals have been initiated, the English *Journal of Endocrinology* and the French *Annales d'endocrinologie*. Incidentally, there was already one French journal devoted to endocrinology and such duplication justifies only too well the protests against the chaotic state of the literature raised in *The Lancet* earlier in the year. While national duplication persists there seems to be little hope for international unification even in a peaceful world. It seems inevitable that in the future the non-specialist and the specialist wanting information on subjects other than his own, will increasingly rely on critical reviews and digests. Professor van Dyke's is such a book.

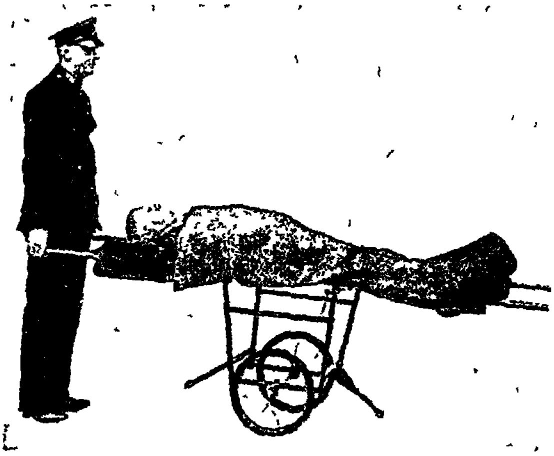
The first volume was published in 1936 and covered the literature on the anatomy, physiology and pharmacology of the pituitary body up to the middle of 1935. At the time it was widely welcomed, but it was felt that it would rapidly become out of date. The second volume removes the basis for that criticism. It is essentially a supplement to the first and covers the literature from 1935 to the early months of 1938. The aim has not been to cover every paper published in those two and a half years, though when it is realised that there are 1418 papers in the bibliography (and these are only 78 per cent. of the titles considered) it will be appreciated that little is omitted.

The writing of such a volume must entail much laborious work and the financial reward cannot be large. By carrying out this task Prof. van Dyke has earned the gratitude of all working on the pituitary gland as well as non-specialists who have no time to penetrate the thickets of specialist literature. One hopes that further volumes will follow in due course.

New Inventions

A LIGHT CARRIER FOR STRETCHERS

To reduce the labour and increase the speed and smoothness of transport of many stretcher cases from the casualty block of the General Hospital, Birmingham, to the wards and resuscitation department, the Raynal Manufacturing Company Ltd., Woodburn Road, Birmingham, 21, have designed and made light wheeled carriers (see figure). The weight of the carrier is 20 lb., and it may be attached with clips to a stretcher (either the old wood and canvas type or the new steel and wire one), so that two bearers can lift both with a patient over obstructions, such as a small flight of stairs and a kerbstone. The carrier runs easily and will turn in its own length; one man can push it fully loaded on a smooth surface without difficulty for a considerable distance. It will stand by itself with the patient tilted slightly with the feet down, and even with four folds of blanket under him there is no tendency to slipping. A restless patient should not remain on the stretcher unattended, for, although fairly stable, it can be overturned if the patient leans well over the side.



Stretcher carrier in use. Note the legs which enable it to stand by itself with the patient slightly tilted

Primarily designed for use in large institutions, the carrier would also be valuable in first-aid posts, in general stretcher-bearing on paved roads, and on railway platforms for the loading of ambulance trains. The carriers can be stacked in nests of three and occupy little space when not in use; another type will be available shortly, fitted with more elaborate supports, so that with a stretcher it may completely replace the heavy four-wheeled trolley, and (if there is any demand) one fitted with larger tires and springs for use on rough roads and a collapsible carrier for transport in motor ambulances can be supplied.

A. P. THOMSON, M.D. Birm., F.R.C.P.

General Hospital, Birmingham

THE LANCET

LONDON: SATURDAY, NOVEMBER 4, 1939

FOOD IN TINS

THE outcry that the modern housewife is a mere tin-opener is a gibe at the modern woman and not at the quality of the food she provides for the household. The implication, however, is that the food thus provided is not all that it should be. There is nothing wrong from the food-value point of view, with tinned foods. Generally speaking, gramme for gramme, they are better value than fresh foods as ordinarily purchased, for they contain little refuse. They have the further advantage that, because they are made up in relatively small amounts, the contents of the tin can be consumed at one meal with a reduction in spoilage from storing in a possibly defective larder. Seasonal variation, especially where fruit is concerned, can be reduced to a minimum. All this and much more can be read between the lines of Sir WILLIAM SAVAGE's essay on canned foods in relation to health, which appears on another page. This was to have been delivered this autumn as a Chadwick lecture but the events which prevented its delivery have made its contents of more immediate topical interest.

Rationing may soon be upon us, and what the housewife wants to know is how she can feed her family to the best advantage on her weekly allowance. As to the quality of canned foods, Sir WILLIAM SAVAGE leaves her in no doubt. They are less often the vehicle of food poisoning, and, in a word, they can be accepted as a safe and convenient source of food without any special hazards, nutritional, chemical or bacterial. On the budget side Sir WILLIAM does not touch. The relative cost of canned and fresh foods is outside the scope of his review. There is no doubt, however, that canned foods are relatively expensive, but, leaving aside so-called invalid and luxury specialties, is there any evidence that they are unduly so?

The cost of selection, with its necessary waste, of the original foodstuff, the handling and the preparation required for filling the individual cans, the canning process itself, including the cost of the cans, the cost of carriage, insurance and marketing, all add up. A scheme for preparing dry skim milk to be supplied at a low cost to crofters' families during the winter when fresh milk is scarce was abandoned because although the raw material was cheap enough, the cost of the cans, of drying and of carriage raised the price to a prohibitive level. Furthermore competition for the British market has been so keen that the canner cannot have been able, even if he wished, to earn excessive profits; he must rely instead on the size of his turnover. To get a big market obviously means the provision of a good product at a reasonable cost. It may well be that as is the case with fresh fruit and vegetables it is the middle man who gets the lion's (or the jackal's) share. It is difficult to get first-hand information on these points, although now it is essential to have it. Many questions remain to be answered after the Chadwick lecture has been digested.

PREVENTION AND TREATMENT OF GAS GANGRENE

THE mortality from gas gangrene has been estimated at about 50 per cent. and its incidence in war wounds is high; it is therefore now a subject of serious importance. Prevention is the ideal to be aimed at. In any infection two main factors must be considered, the seed and the soil. In gas gangrene the seed is the *Clostridium welchii* and other related anaerobic bacteria often associated with aerobes; infection cannot develop in a wound unless the organisms are allowed to remain there long enough to multiply and do their dirty work. Their stay must therefore be cut short by killing or removing them at the earliest possible moment. To kill them in the wound is always difficult and often impossible, but they can be effectively removed by early and thorough excision of all foreign bodies and contaminated tissues. Ideally this entails complete excision of the wound in its literal sense but in actual practice this can seldom be done, although it must be approached as nearly as may be. It is always wise in addition to use a benign antiseptic (such as flavine) in the hope of killing any organisms that remain. If the sowing of the seed cannot entirely be prevented the soil must be made unproductive. All devitalised tissue, especially muscle, must be excised, adequate drainage provided, and the part immobilised. This is elementary surgery but it is the foundation of success. BÖHLER relies entirely on these measures; he does not even use prophylactic antiserum, and in 1933 he could write[1] that they had never failed. TRUETA,[2] another exponent of thorough and specially early débridement of wounds, saw only one case of gas gangrene develop in over a thousand fractures treated by his methods in Barcelona during the Spanish war, whereas the condition was already present in several patients transferred to his clinic many hours after the injury. His experiences emphasise the need of making the interval between injury and operation one of minutes rather than hours.

The treatment of the established infection is more difficult and much more uncertain. The knife is again the weapon. The wound must be laid open widely and left open, and all dead, dying and crepitant tissues, especially muscle, must at once be removed. Immediate amputation may be unavoidable in the more serious cases.

---

[1] Böhler, L. Die Technik der Knochenbruchbehandlung, Vienna, 1933.

[2] Trueta, J., Treatment of War Wounds and Fractures, London, 1939.

but the local treatment can often be tried first, and Mr **Brittain** describes in this issue a case in which expectant treatment was successful and the limb saved Antiseptics are unlikely to be effective, but irrigation of the wound with hydrogen peroxide has a sound theoretical basis and should be tried **Mitchiner** and **Cowell**[3] recommend injection of hydrogen peroxide into the surrounding tissues to prevent the spread of anaerobic infection Large doses of antiserum should also be given although its value is doubtful, some workers having produced clinical and experimental evidence of its effectiveness while others have found it useless So long as it does no harm and there is a chance it may do good the patient should be given the benefit of the doubt **Kelly**[4] and his co-workers are enthusiastic about X-ray treatment and their results at least justify a thorough trial of this method What of chemotherapy? Like serum it has given contradictory results, but the balance of evidence seems to be in its favour **Bohlman**[5] records the recovery of three cases of gas gangrene, one of them justifiably described as desperate, after treatment with sulphanilamide **Jansen**[6] and his colleagues have reduced the incidence of infection in compound fractures from 27 per cent to 5 per cent since they started putting crystalline sulphanilamide into the wound before suturing it. Good results have also been obtained in cases of puerperal[7] and post-abortal[8] infection with *Cl welchii* On the other hand, **Kendrick**[9] found sulphanilamide and related compounds quite unable to save guineapigs experimentally infected with *Cl. welchii.* Nevertheless, while there is some evidence in their favour these compounds should be used in all established cases

WHAT IS NORMAL BLOOD-PRESSURE?

So much doubt exists and such varying statements are made about the normal range of blood-pressure that any extensive survey must be examined with interest **Robinson** and **Brucer**[10] have analysed results obtained from the examination of over ten thousand apparently healthy people of all ages, many of whom had been under observation for ten years, and have shown that the familiar "age plus 100" formula is quite misleading They find that the normal range of systolic pressure is 90–120 mm of mercury, that of the diastolic pressure 60–80 mm, and furthermore that the mature blood-pressure is reached in adolescence and does not rise with age From day to day and from year to year there may be a variation of 5–10 mm, but apart from this the blood-pressure in health is constant They say that if a person's blood-pressure exceeds 120 systolic and 80 diastolic over a ten-year span he is almost certainly going to develop gross hypertension sooner or later; they find too that transient elevations are often the precursors of a permanent rise

These conclusions are so important that it is desirable to see how they have been reached The subjects observed were living in Chicago, and most of them had been accepted for life assurance after examination many years previously They were aged from 20 to 70, and were urban men and women leading relatively sedentary lives The actual estimations were carried out by six physicians using a uniform technique and employing the auscultatory method, whenever the reading was unusual the estimations were repeated The diastolic reading was taken as the point where the loudest sound ends Two-thirds of all the records were below 125 systolic and 80 diastolic The vast majority of those whose pressures were below 140/90 showed no rise in pressure as they got older, whereas, in the group with pressures above this figure there was a steady increase with age and the age at death was considerably below the average **Robinson** and **Brucer** maintain that hypertensive heart disease ischæmic renal disease, coronary thrombosis and cerebral disasters are almost exclusively confined to the group with blood-pressures above what they have laid down as the true normal They consider that more than 40 per cent of the adult population is either actually or incipiently hypertensive, and that the expectation of life decreases progressively as the systolic or diastolic blood-pressure rises Their exposure of the "100 plus age" fallacy is not new A year ago, **Linnell** and **Thomson**[11] stated that it had finally been disproved, and laid down that between the age of 20 and 60 the pressure should not normally increase more than 15 points **Robinson** and **Brucer**'s criterion of the upper limits of normality (140/90) would agree with this, assuming that 125/80 is normal at 20

On the other hand, they find that people with low blood-pressure live longest, and that low pressure in itself never justifies an unfavourable prognosis Hypotension, they say, is not a pathological condition, but is an ideal blood-pressure level, and they find no evidence that hypotension is ever in itself responsible for symptoms Certainly many English cardiologists would agree that hypotension is a cause for congratulation rather than a cause for commiseration If these various conclusions are true—and the work is impressive—life-assurance companies would be wise to penalise hypertension even more than they do now This brings with it the corollary that teachers of medicine should make sure that their students are genuinely competent in the use of the sphygmomanometer That is not to say that minute degrees of accuracy should be aimed at—many an experienced physician feels that he is not justified in reading pressures to anything closer than 5 mm of mercury But at present it is to be feared that if fifty average medical men estimated the blood-pressure of one patient their results would [illegible] to an extent which might make it [illegible] to draw prognostic conclusions from them.

---

[3] Mitchiner, P H and Cowell, E M, *Lancet*, 1939, 1, 287
[4] Kelly, F. J, Dowell, A Russum, B C, and Collen, F. E, *Radiology* 1939, 31, 608
[5] Bohlman H R, *J Amer Med Ass* 1937, 109, 254
[6] Jansen, Luverne, Johsvind and Nelson, *Surgery*, 1939, 6, 1.
[7] Baker J K, *Lancet*, Sept 16, 1939, p 646
[8] Sadurkand and Mannhan *J Amer Med Ass* 1939 113, 14.
[9] Kendrick, D B, *J. clin Invest* September, 1939 p 593
[10] Robinson, S C, and Brucer, M, *Arch intern Med* September, 1939, p. 409
[11] Linnell, J W, and Thomson, W A R, *Brit med J*, 1938, 2, 442

CARCINOGENIC ACTION AT A DISTANCE

One of the most [illegible] developments of experimental cancer research [illegible] few years is the ability [illegible] distance from the site [illegible] carcinogenic chemical, and [illegible] The first knowledge of [illegible] gained when Lathrop and Loeb removed the ovaries of young mice of a strain with a high incidence of cancer, and found that as they grew older mammary cancer was far less prevalent among them than among controls that had not been castrated. By successive stages various workers showed that this particular organ association is due to the action of ovarian follicular hormone and it even proved possible, by repeated subcutaneous injections of folliculin (œstrin), to produce mammary cancer in male mice of a cancer-bearing strain. The disease can also be induced by the same means in females of ordinary stock, though the proportion of tumour bearers is less. Evidently the normal physiological relationship between mammary gland cells and follicular hormone is replaced by a pathological reaction to an increased dose, and the susceptibility is greater or less according to hereditary constitution. The same reaction to œstrin or its derivatives has been found in rats. By injecting œstrone intramuscularly or implanting it in pellets, Geschickter[2] succeeded in inducing cancer of the breast in males and females of a strain in which no spontaneous tumour of that nature had ever been seen. In this case no hereditary predisposition was involved and the relationship was merely physiological.

Nearly all strains of mice bear lung adenomata as the mice age, and the incidence of these tumours is greatly raised under treatment by cutaneous, subcutaneous or intravenous applications of 1 2 5 6 dibenzanthracene; sometimes, indeed, the lungs are even more susceptible than the subcutaneous tissue. Here the susceptibility is inherited as a mendelian dominant. The discovery by Yoshida[3] that O-aminoazotoluene given by mouth causes liver carcinoma in rats was an accidental one in the course of a systematic test of the carcinogenic action of certain aniline dyes. A chemically related dye, dimethylaminoazobenzene, which according to Kinosita[4] is yet more active in the liver, is of special interest because under the trade name of "butter yellow" it is used in Japan to colour butter, oils and other human foodstuffs. Aniline cancer of the bladder was produced in dogs by subcutaneous injections of β-naphthylamine by Hueper and others[5] a short while ago. The most recent instance of action at a distance was recorded in our columns by Lipschütz and Vargas,[6] last June when they described the induction of fibromyomas in the uterus and abdominal cavity of guineapigs by subcutaneous injections or implanted pellets of ovarian follicular hormone. In our issue of Oct. 21 they reported further experiments on the means whereby this "tumorigenesis" may be prevented.

When special susceptibility to cancer exists in any organ, minute quantities only of the carcinogenic chemical may be required to reveal it. We drew attention in our issue of Sept. 16 to the very small dose that caused cancer of the lungs in Magnus's experiment. Confirmation of this opinion is now available from the work of Andervont,[7] who incidentally has added to the list of those that act on the lungs from a distance two chemicals, 3 4 5 6 dibenzcarbazole and 2 amino 5-azotoluene, neither of which belongs to the series of polycyclic hydrocarbons. In an inbred strain he induced pulmonary tumours with as little as 0.2 mg. of 1 2 5 6 dibenzanthracene and 0.1 mg. of methylcholanthrene given in single intravenous injections. Similarly lung tumours developed, though at a later date, in non-susceptible hybrid mice after the injection of 1 mg. of dibenzanthracene. In discussing these observations Andervont suggests that hereditary influence is only a matter of degree. Strains of mice which do not ordinarily bear more than 1 per cent. of these tumours reveal the same sensitivity to the chemicals injected at a distance, while other species of animal in which no inbreeding has been carried out also show organ susceptibility to certain substances. Nor can this action be merely constitutional; the carcinogen does not operate by releasing an inherited tendency. He has shown that the chemical must actually reach the cell which eventually becomes malignant. If it is localised at the site of injection, by adsorption on charcoal, lung tumours do not develop, whereas a similar suspension injected intravenously will induce lung tumours. The circulatory arrangements of the body ensure that the whole of the circulating chemical must pass through the lungs, while only a smaller portion will reach liver, mammary glands and other regions. This may explain why the effective dose required appears to be greater in the latter organs. It may, however, be extremely small when it acts on an organ whose susceptibility to tumours has been raised by breeding.

---

[1] Lathrop, A. E. C., and Loeb, L. J. Cancer Res. 1916, 1, 1.
[2] Geschickter, C. F. Science, 1939, 89, 35.
[3] Yoshida, T. Tokyo Igaku Z. 1932, 46, [illegible]
[4] Kinosita, R. Trans. Soc. path. jap. 1937, 27, 665.
[5] Hueper, W. C., et al. J. industr. Hyg. 1938, 20, 46.
[6] Lipschütz, A., and Vargas, L. Lancet, 1939, 1, 1313.
[7] Andervont, H. B. Publ. Hlth Rep. Wash. Aug. 18, 1939, 1512, 1524 and 1529.

Scottish Medical Curriculum.—The long expected reorganisation of the medical curriculum at the Scottish Universities has had to be postponed. In both Edinburgh and Glasgow arrangements had been made for extending the curriculum to cover six years, but it has been decided that the dislocation which would be involved is now unjustifiable. Students entering on a medical course will therefore follow the old five-year plan. The number of enrolments in the medical faculties have not so far suffered any serious depletion, but many of the teaching staffs have been removed for war service and this, added to the partial disorganisation of hospital facilities, has made clinical teaching more difficult than in peace-time.

ANNOTATIONS

WOMEN AND SPORT

THE value of open-air exercise for women is now well recognised, but the question of athletics is still at issue, and on this point there has been little medical guidance in this country. The Women's Athletic Association itself recently asked for some definite medical pronouncement on certain items such as the long jump and hurdling, and the medical committee of the National Fitness Council formed a subcommittee under the chairmanship of Sir Adolphe Abrahams to test opinion This subcommittee pointed out that adequate research into the effect upon women of competitive athletics would have to extend over several years, but by means of interviews and questionnaires they would collect data indicating any deleterious or advantageous results Representatives of competitive standard in swimming, water-polo, rowing, tennis, team games and all-round athletics were interviewed The results were summed up by Sir Adolphe Abrahams, who reported that "The committee had endeavoured to obtain adverse criticism on violent exercise for women and girls, but up to the present without success"

Dr S K Westmann, in an opportune book,[1] contends that any form of exercise for women—as distinct from men—must be considered in relation to their difference in build, physiological function, and optimum type of expenditure of energy. If a graph is plotted of the pain rhythm during the first and second stages of labour, both curves show a gradual rise and fall of action and relaxation This indicates, he suggests, that the type of movement suitable for women should be "the line of golden mean" and not movements which "strain them to the uttermost as in the case of men" Strong jerky violent or jarring exercise should be avoided By an anatomical analysis he claims to show the ill effects which would inevitably follow violent exercise during menstruation and pregnancy, especially the first three months Where such ill effects are not clinically apparent, he claims a sexless and sterile type is produced With examples from his own experience as physician and obstetrician, he supports his belief that "too great indulgence in sports designed for men is not favourable for the childbearer of the race, since it will tend to be the means of reproducing a female type of rigidity of fibre which the obstetrician has so much cause to fear She has the muscles for exerting pressure, but not for yielding when occasion requires it"

Whether athletic training for women is more intensive and harmful in Germany and America, from which countries Dr. Westmann gets most of his figures, than it is in England, cannot be checked from lack of comparative data The only British figures given are those from an investigation in 1924 of 224 married and normally fecund gymnastic teachers in whom 29 per cent of confinements were difficult This section of the community does not of course take part in the violent and competitive exercise which Dr Westmann complains about It will be interesting to see the results of the questionnaires issued this year by the Medical Women's Federation in conjunction with the Ling Association, also to married gymnastic teachers, but with relatives and friends as "controls," an essential precaution which is often lacking in such statistics. Dr Westmann devotes several interesting chapters to the indubitably good effects of many general sports taken in moderation—cross-country running, walking, golf, swimming and tennis. Here he relaxes his emphasis on purely gynæcological aspects and gives a good technical and physical analysis. He adds pertinent warnings about cycling, sprinting, putting the weight, ski-ing and mountaineering. The two last sections of the book deal with special remedial exercises during pregnancy and the puerperium, and general gymnastics for women These are not new but are clearly described and illustrated, and sound applied anatomical principles are handled with equally sound common sense.

SKIN COMFORT

A RECENT development in the study of temperature control has been the analysis of purely physical factors determining heat loss from the body. The perfecting a few years ago by Dr. J. D Hardy of an instrument measuring heat radiated from the body, as distinct from that removed by convection and evaporation, has enabled the part played by the skin to be fully investigated Dr. E F Du Bois[1] points out that in spite of their boasts "nudists possess no magic that will interfere with the laws of radiation" The body is a physical as well as a physiological entity. Lest he should be thought to claim this as a new revelation Dr Du Bois gives full credit to Adam and Eve, Newton, Rubner, Leonard Hill, and above all, for their practical knowledge, to the Eskimos But his review deals chiefly with the patient work, carried on by himself and his colleagues at the Cornell Medical College, in the tradition established by Graham Lusk.

The hero of the story is the subject who comes to the laboratory at 9 o'clock and receives no breakfast until 2 30 For most of the intervening time he is suspended naked on a fishing net in a calorimeter, with little company save a rectal thermometer and no occupation except to make passes over his skin with a Hardy radiometer when told to do so In case he should be thought to be merely an innocent victim, it is only fair to remark that his initials, appearing on the graphs, are sometimes E F. D B and sometimes J D H The modes of heat loss have been studied in numerous environmental conditions, and the large part played by radiation when these are "normal" is striking. The colour of the skin makes practically no difference, for it radiates in the relatively long infra-red range where it acts as a perfect radiator—in physical terminology a perfect "black body." This allows the temperature of the skin to be deduced from the radiometer readings, the surface of the body remaining untouched by any instrument; further, an accurate estimate can be made of the skin circulation Comparison of the temperature of the central mass of the body, as given by the rectal thermometer, with that of the surface layer shows the physical gradient of heat loss Below 28° C the skin acts as a heat insulator, somewhat more efficient than cork, whereas above 34° C it takes on the opposite function to such an extent that the flow of blood through the skin may amount to 12 per cent of the cardiac output The "comfort zone" for the naked body is round about 30° C Above this temperature the heat-losing power of the skin must be increased; below it heat is lost passively in spite of the protection of bloodless skin, and rigors—resulting in increased heat-production—ultimately take place. These have also been studied and can be precipitated and postponed by drinking cold water and alcohol respectively. The ability of alcohol to inhibit shivering, although aesthetically desirable, is physiologically harmful.

---

[1] *Sport Physical Training and Womanhood* By Stephan K Westmann, M D Berlin, L R C P E, formerly obstetrician and lecturer, Berlin Postgraduate Medical School London Baillière, Tindall and Cox 1939 Pp 222 12s 6d

[1] Du Bois, E F in Harvey Lectures (New York) 1938 33 London Baillière, Tindall and Cox 1939 Pp 279 15s

Besides disclosing new facts and stimulating research, the work has systematic value for it includes many measurements apart from radiant heat loss. The influence of clothes on the extent and partition of heat loss in different environments is studied and it should ultimately be possible, given certain fixed conditions, to say how such conditions as remain variable should be adjusted so as to give the maximum "comfort zone." Bedford and Warner[2] who have recently investigated the question of comfort from the subjective side, show that heat loss and its impairment is not the only factor to be taken into account, but it must always be of fundamental importance. Dr Burton covers recent work on temperature regulation and his article[3] will be found useful by those who would see the work of Du Bois and his colleagues in perspective.

STUDIES ON THE ENDOMETRIUM

MANY attempts have been made lately to classify the various histological pictures to be seen in the endometrium. Herrell of the Mayo Clinic[4] distinguishes in the first place between primary and secondary ovarian dysfunction, the latter being due to a pituitary or thyroid disturbance. In these primary and secondary groups the histological changes in the endometrium are the same; but this is easily understood when one recognises that the endometrium cannot directly obey a higher endocrine command unless this is issued through the ovary as intermediary. To take a simple instance, the injection of anterior pituitary hormones, in however large and potent doses, cannot alter the endometrium in the woman with no ovaries.

The histological classification suggested by Herrell is a division of the endometrial cycle into a phase of menstruation, a phase of early proliferation, and a phase of late proliferation, followed by a phase of early differentiation and a phase of late differentiation. The last corresponds to the secretory phase of English writers. Should any of these phases be arrested, it will persist and the histological findings will depend on the time in the cycle at which it was arrested. Thus an endometrium that shows proliferation with no secretory changes at the 21st day of a 28 day cycle is evidence of deficiency or absence of luteinising hormone. The patient will have a normal urinary œstrin content, but her excretion of pregnandiol in a 24 hour specimen of urine will be deficient or absent; her complaint will be bleeding or sterility. Similarly, persistence of the early secretory phase, appropriate to about the 18th day of the cycle, in endometrium removed at the 27th day of a 28 day cycle is evidence of incomplete differentiation, due to partial failure of the corpus luteum. Such a patient will have a subnormal excretion of pregnandiol and will very probably be sterile, but she is unlikely to suffer from bleeding. When cystic changes are found in the endometrium in association with the proliferative phase the tendency is towards excessive hæmorrhage, whereas when they are found in the secretory phase the tendency is towards sterility without bleeding.

Herrell maintains that carcinoma occurs almost always in the persistently proliferative type of endometrium in which secretory changes are rarely seen but cystic changes are not uncommon. Such an endometrium resembles the type associated with unopposed œstrin activity, the influence of the corpus luteum being absent. The existence of this excessive œstrogenic activity is, he says, supported by the finding that follicular cysts are present in the ovaries in 90 per cent. of cases of carcinoma of the body of the uterus and by the presence of œstrin in the urine of these patients. He has never seen carcinoma of the body of the uterus in a previously castrated woman.

A YEAR'S WORK FOR EYES

IN its annual report for 1938–39 the work of the National Ophthalmic Treatment Board is considered under three headings: investigation, education and the origin and development of the National Eye Service. Of 30,741 cases of eye defect here analysed the great majority were due to errors of refraction, and presbyopia accounts for the largest number of these. Diseases of the conjunctiva, cornea and uveal tract came next. The report points out the importance of good eyesight and good lighting in industry. Bad lighting has been shown to have a significant effect on the accident rate and the quality and quantity of work done. Those doing fine and close work and work that requires a full field of vision and a proper appreciation of depth and distance—such as motor driving—should have a proper examination by an ophthalmologist.

Owing to the cost of newspaper advertising the board is mainly dependent on the general practitioner, welfare worker and public-health officials to educate the public about the benefits of medical eye examination. However, a film "Eyes Right" was issued at the beginning of 1938 and has been shown with success in halls and schools throughout the country. A film dealing with eye diseases and refractive conditions will shortly be available for the medical profession. Several exhibitions have been given, notably one at the Charing Cross Underground station, where 50,000 leaflets were distributed. In order to interest the employer in the eyes of his workers, a booklet "Vision in Industry" was issued by the board, and in addition leaflets and posters have been distributed in factories and lantern lectures have been given to trade unions. Since its inception in 1929 the National Eye Service has treated 700,172 patients, the annual number having now risen to 150,000.

TUBERCULOSIS AND PREGNANCY

THERE is an old adage that a consumptive woman bears a first pregnancy well, a second badly and a third never. Statistics do not entirely bear out this gloomy view of the situation. Few controlled observations have been made, but whenever the same age-groups have been observed over the same length of time under similar social conditions the fate of the tuberculous pregnant woman has not been found to be significantly worse than that of the tuberculous non-pregnant woman. This applies particularly when both groups were placed under a sanatorium regimen. And yet other things being equal it is not unreasonable to suppose that a woman exposed to two risks, tuberculosis and pregnancy, is less well placed than a woman exposed to one of these risks only, and every clinician has seen examples of tuberculosis and pregnancy which have devastated the life of a young family. Small wonder if he is apt to give a bad prognosis, ignoring the fairly balanced evidence of the statistician. Mechanical factors are often advanced to explain the malign effect of pregnancy on [illegible] losis; the raising of the diaphragm is said to diminish the pleural space, to limit the expansion of the lung and to decrease the pulmonary circulation. Others claim that longitudinal reduction of pleural space is compensated for by increase in width, that the hæmo-respiratory exchange is not markedly interfered with, that tubercle often flares up in the early months of pregnancy before the diaphragm is pushed up and that in any case the effect of partial collapse of the lung as seen in artificial pneumothorax does not seem to interfere with the pulmonary circulation. Whatever the explanation may be—and there are several others besides the mechanical ones—the fact remains that some of the worst instances of the effect of pregnancy on tuberculosis are those in which the disease flares up after a confinement, and that in spite of good health and care during the previous nine months and an easy labour. On p. 976 of our present issue Dr. Josephine Barnes relates a case of this kind, in which a bad result was anticipated by the induction of pneumoperitoneum, followed by a course of sanocrysin The success attained in this case merits a further trial of the method especially if carried out, as it was in this instance, under expert control by obstetrician, physician and radiologist

---

[2] Bedford, T., and Warner, C. G. J. Hyg. Camb. September, 1939, p. 498.

[3] Burton, A. C. In Annual Review of Physiology, vol. 1, Stanford Univ. Calif.

[4] Herrell, W. E. Amer. J. Obstet. Gynec. 1939, 37, 559.

THE DOYEN OF PHARMACOLOGISTS

Hans Horst Meyer, whose death on Oct. 6 is announced at the age of 86, was the chief direct inheritor and transmitter of tradition from a great era which, under Binz, Buchheim, Schmiedeberg and Bohm, saw the foundation in Germany of pharmacology as an experimental science. Meyer was a pupil of Ludwig and of Schmiedeberg, and after a brief tenure of the chair of pharmacology in Dorpat, held those in Marburg and in Vienna for the main periods of his active career His name will always be associated with the theory connecting anæsthetic activity with relative solubility in water and lipoid solvents, put forward at the same time and independently by E Overton. Other well-known researches by Meyer dealt with the natural and artificial muscarines, and with local tetanus, the latter in association with the late F. Ransom. No list of Meyer's published researches, however, can do justice to his position and influence in pharmacology, which spread far beyond his own country. A man of distinguished and attractive personality, he made many contacts here and in America, as well as on the continent of Europe. The text-book of experimental pharmacology, which he wrote with the late R. Gottlieb, is a standard work, kept up to date till recently with his pupil and successor E P. Pick, now in America Another distinguished pupil of Meyer is O. Loewi, professor in Graz till 1938 For some years Meyer had been living in retirement in Vienna.

TRINIDAD AND ITS TROUBLES

Mr Calder-Marshall went out to Trinidad in 1938 to study for three months the causes of discontent in that chronic storm centre of the British Empire He has produced one of the most readable and, in spite of its obviously biased outlook, one of the most informative books yet written on a West Indian island[1] Trinidad contains a community of great racial and social complexity, and the visitor is usually too bewildered to learn anything of the real difficulties of government or people The people themselves, their squalid surroundings, their amusements and interesting folk songs (known as "calypsos"), their pathetic efforts to form trade-unions on the European model, are depicted in a vivid and very accurate series of sketches His descriptions of public health deficiencies, and especially of the notorious bad housing in Port of Spain are in no way exaggerated and are supported by quotations from recent official reports The strenuous efforts made to improve the hospital and public medical services in recent years do not, however, receive adequate recognition If, as he admits, the East Indian is indifferent to filth, and if the negro too often prefers the "sympathetic flummery" of obeah to rational medicine, it is hardly the fault of the government. Could Mr Calder-Marshall bring himself to believe that employers, and even government officials, are also God's creatures he would be a more reliable observer and a sounder guide As it is, he has produced a work on an important problem which all can read with profit and entertainment.

M. & B. 693 IN GONOCOCCAL ENDOCARDITIS

THERE are several points of interest in the record by Orgain and Poston[1] of a case of gonococcal endocarditis cured with sulphapyridine (M. & B. 693). The patient, a young woman, had fever, swollen joints, and finally endocarditis involving the pulmonary valve Gonococci were repeatedly grown in blood-cultures and also a non-hæmolytic anaerobic streptococcus. Sulphanilamide proved ineffective; so treatment with 5 g of M. & B. 693 daily by mouth was instituted and continued for a month, the concentration of the drug in the blood being maintained at about 6 mg. per 100 c.cm. Complete recovery took place after a period of anæmia attributable to the prolonged administration of M & B 693 in such large quantity. Blood-cultures showed that the gonococcus disappeared before the streptococcus Coincident with the subsidence of the bacteræmia, while the immune bodies appeared in the blood, the complement-fixation test became negative That reaction had been high during the active stage of the disease, and it appears probable that the inverse relation between immune bodies and complement-fixing antibody is of prognostic significance

---

[1] Orgain, E S, and Poston, M A, *New Engl med J* Aug 3, 1939, p 167

Prof ANTON von EISELSBERG has not long survived his autobiography, of which a review appeared in our issue of April 1. He had not the massive proportions of his master Billroth, but for thirty years he occupied the chair of surgery in Vienna with distinction both as a surgeon and as a leader of his profession.

The Nobel prize for physiology and medicine for 1939 has ben awarded to Prof GERHARD DOMAGK, director of the department of experimental pathology and bacteriology at the I G Farbenindustrie laboratories at Elberfeld, in recognition of his discovery of Prontosil As Nobel prizes are forbidden to Germans, Professor Domagk will probably be unable to accept the award which amounts to nearly £9000. When Professor Domagk was awarded the Cameron prize of the University of Edinburgh earlier this year we published a brief account of his work (*Lancet*, 1939, 1. 584). The Nobel prize for 1938, which was reserved last year, has now been awarded to Dr CORNEILLE HEYMANS, professor in pharmacodynamics in the University of Ghent, for his detection of the importance of the sinus and aorta mechanism in breathing.

---

[1] Glory Dead. By Arthur Calder-Marshall London: Michael Joseph Ltd 1939. Pp. 286 15s

SPECIAL ARTICLES

CANNED FOODS IN RELATION TO HEALTH

By Sir William Savage, B.Sc., M.D. Lond.

IN 1923 I delivered the Milroy lectures before the Royal College of Physicians on the same subject as the present [illegible] three lectures, I had room to discuss the subject in some detail. The lectures were subsequently published by the Cambridge University Press. Very great progress has been made since 1923 on the technical side of canning, and much experimental evidence acquired on the scientific side, especially as regards vitamins. In view of the great practical importance of the question my aim in the present paper is to bring the facts up to date, treating the various points as fully as limits of space allow.

CONSUMPTION OF CANNED FOODS IN GREAT BRITAIN

Although everyone is aware of the vast quantities of canned foods consumed, probably few realise the magnitude. Over 350 different commodities are now on the market. The United Kingdom is the largest single importing market for canned foods, and in 1937 over ten million cwt. was imported. Home production also is now considerable. These facts are brought out in tables I and II.*

TABLE I—CANNED FOOD IMPORTS, 1937

Fruit	1,650,000 cwt	(pineapple (per cent.) 27, pears 32 5, peaches 19 6)
Vegetables	1,330,000	(tomatoes about 65 per cent.)
Fish	1,015,000 "	(salmon (per cent.) 72 9, sardines 6 2, crab 5 0, others 15 9)
Meat	1,401,000 "	(beef 77 per cent.)
Milk and milk products	1,684,000 "	(sweetened skimmed (per cent.) 74, unsweetened whole 19, sweetened whole 7)

TABLE II—HOME PRODUCTION, 1935

Fruit	462,000 cwt	(11 1 per cent. of total home production)
Vegetables	1,400,000 "	approx (nearly half total home supply, canned peas largest item)
Fish	180,000 " "	(11 per cent. of total; canned herrings about ½ of total)
Meat	233,000	(mainly preserved meats)
Milk and milk products	966,000	(proportion retained for home market, excluding skim condensed)
	1,100,000 "	(proportion retained for home market of skim condensed milk includes a considerable quantity marketed in bulk)

Also 166,000 cwt. of canned cream was produced in 1937.

These tables show that, apart from milk and vegetables, 85–90 per cent. of the canned foods consumed in this country is imported. This raises two questions about these imported foods—the care and supervision over production in the countries of manufacture and the extent of the supervision as they reach this country.

Extensive steps are taken abroad to ensure satisfactory production, but these naturally are not equally stringent everywhere. My personal experience is limited to U.S.A. and Canada, and I was impressed with their completeness and value. Judging from the various regulations in different countries they compare very favourably with similar control over fresh foods. Even more important, however, than regulations is the fact that a very high standard of cleanliness and care is an industrial necessity, for a lack of it is nearly always shown by a rising percentage of unsound tins and heavy economic losses. It would involve too much space and be outside the scope of my paper to discuss the control exercised over imports of canned foods, but from personal experience I know it is very extensive. I refer those interested to a paper by White (1936).

On the health side three problems have to be considered: (1) whether in the process of manufacture the food is affected in any way as regards its nutritive value; (2) whether, either from the method of preparation or from the containers, any chemical substances may be added which may be prejudicial; and (3) whether canned foods have any liability to convey or cause disease of bacterial origin, and if so an estimate of the risk compared with the same foods in a fresh condition. Briefly put, the three problems in relation to health are possible alteration of the nutritive properties of the food, chemical additions, and bacterial *infections or toxins*. All three possibilities require detailed consideration.

NUTRITIVE PROPERTIES

Reduced to essentials, the canning process involves preliminary treatment to select the parts of the food which are suitable for canning and in some instances to blanch, soften, or otherwise prepare the food, and a subsequent heat treatment in sealed containers to render the food safe for storage for long periods and subsequent usage after preparation. All canned foods are therefore subjected to treatment, particularly by heat, and it is possible that this may affect the nutritive qualities of the food so treated.

On the quantitative side there is no evidence that foods so treated have their total nutritive value affected in any way. Indeed from this point of view they possess considerable advantages due, on the one hand, to the fact that to give a successful commercial product the foods must be utilised by the canner in an extreme state of freshness and, on the other hand, that the preliminary treatment is calculated to make the whole of the food canned available as food without any wastage.

Qualitatively the position is not quite so simple, for theoretically it is possible that the treatment given might affect the mineral balance and the vitamin content. The question of mineral balance really only arises as regards milk, and there is no evidence that it is affected. Henry et al. (1939), who studied this and other questions for dried and evaporated milk, state "no significant difference was found between the biological values of the proteins (nitrogen) of the processed milks" and "as regards biological value and true digestibility the figures show very slight reduction but not of statistical significance."

Our knowledge of vitamins and the conditions under which they are destroyed or reduced in foods has been greatly augmented in recent years, so it is now possible to furnish reliable data as regards their presence in canned foods. An excellent summary has been given by Fixsen (1938).

Vitamin A.—Both this vitamin and *carotene* are insoluble in water and stable even at high temperatures, provided there is an absence of oxygen. Vitamin A is much more sensitive to oxidation than to the degree of heat. Experimental work confirms that canning is not destructive to this vitamin and is definitely less prejudicial than ordinary cooking.

---

* Compiled from A Survey of the Trade in Canned Foods 1939 (32nd report of the Imperial Economic Committee).

Vitamin-B_2 complex is very heat stable, but, since it is water soluble, loss is to be anticipated from the preliminary washing (for fruits and vegetables); but this applies even more so to ordinary cooking. The experimental work done is not very large, but as regards riboflavin, probably the least stable member of the complex, no loss has been observed in several foods, including evaporated milk (Henry et al 1939)

Vitamin D has a high stability to heat, and experimental work confirms that no destruction takes place during canning

Vitamin B_1 is comparatively little affected by oxidation and possesses considerable resistance to heat in an ordinary acid medium On the other hand, it is water soluble Preparation processes, whether for ordinary domestic cooking or for canning, may cause considerable loss of this vitamin Roscoe (1930) found that about half the B_1 content of spinach went into solution in the cooking-water during a period of 15 minutes' boiling, and Baker and Wright (1935) show considerable cooking loss with some foods Apart from loss in preparation the rather scanty experimental evidence suggests that the destruction of vitamin B_1 in the canning is usually small, but that there is some. Except for milk, there do not appear to be any reliable comparative figures of the vitamin-B_1 content of the same food before and after canning. For milk Henry et al (1939) found little or no destruction with dried milks but considerable loss with evaporated milk

Vitamin C is readily affected by heat, by washing, and by storage Numerous investigations have been made on the influence of these factors, particularly as regards ordinary cooking The vitamin-C content of fruits and vegetables shows considerable variations even with the same food. Further, the content begins to diminish from the time of picking (Fixsen 1938, Olliver 1938), and here canned foods have a definite advantage as economic factors necessitate the shortest possible time between picking and canning

Very few papers give comparative figures for the vitamin-C content of the same foods raw, cooked, and canned Valuable studies have, however, been made by Olliver (1936) Her detailed tables from experimental work will repay study. Space only permits to give her conclusion.—

> "Part of the vitamin C content is extracted from plant tissue when it is heated in liquid as in cooking and canning At the end of the normal process in each method the ascorbic acid is frequently evenly distributed throughout solid and liquid. The percentage of ascorbic acid destroyed in both cooking and canning is comparatively small, but considerable quantities are lost to the consumer when the water used for cooking vegetables is discarded Vegetables after storage may contain appreciably less vitamin C than the fresh material after canning . . The ascorbic acid content in canned material tends to fall on storage, but for all practical purposes the loss is not great"

The much higher content of ascorbic acid in raw fruits and vegetables is shown by table III (from Olliver 1936)

Henry et al. (1939), experimenting with evaporated milk, found a loss of 30 per cent of vitamin C. Numerous other examinations of canned fruits and vegetables, particularly tomatoes, show a material retention of vitamin C adequate for them to serve as valuable sources of this vitamin This particularly applies if the canning has been comparatively recent Daniel and Rutherford (1936) found that, whereas fresh tomato-juice contained an average of 0 20 mg of ascorbic acid per g, there was a loss of about 12 per cent on canning and a further loss of 10–13 per cent on storage for six months This still left a considerable amount of ascorbic acid. The practical experience of the French Mission to Greenland in 1932–33 (Le Mehauté et al. 1934) was that the fifteen men lived for thirteen months on tinned foods, almost entirely without fresh foods, and no food-poisoning or nutritional defects resulted The tinned fruits and vegetables yielded sufficient vitamin C to prevent scurvy

TABLE III—AMOUNTS OF RAW, COOKED, AND CANNED FRUIT AND VEGETABLE REQUIRED TO GIVE 30 MG OF ASCORBIC ACID

Fruit or vegetable	Raw	Cooked	Canned
Black currants .	½–¾ oz	½–1 oz	½–1¼ oz,
Gooseberry	2¼–3¾ „	3¾–7 „	3¾–9½ „
Spinach .	1–3½ „	2–8½ „	4½–8¾ „
Broad bean	3½ „	11¾–13½ „	6–8 „
Pea	3½–5½ „	10½–16 „	3½–13 „
Carrot ..	13–106 „	11–39 „	26–31 „

The common-sense way of looking at the question is to realise that all cooking processes, whether domestic or canning, cause material loss of vitamin C and that storage causes additional loss. Modern canning methods are designed to minimise this loss, so that it is better controlled than domestic cooking, and the loss may well be less If we require a high intake of vitamin C, we have to rely on fresh fruits and vegetables to supply it, for all cooked foods are inferior sources For a sufficiency level many canned fruits and vegetables have an adequate amount It cannot be considered as in any way prejudical to canned foods that being cooked foods they share the limitation of all cooked foods as inferior to raw foods as sources of vitamin C.

The nutritive side of canned foods has also been studied experimentally. Godden and Thomson (1939) fed some 1700 rats in four successive generations over a period of eighteen months in comparable groups, one entirely on canned foods and the other on fresh foods cooked as in an ordinary household. Their finding on the rats fed on canned food was as follows —

> "Their performance in respect of breeding, growth, and composition of the body as a whole as well as of the bones and teeth separately was in all respects comparable with that of similar rats fed on a diet of corresponding foods, shop purchased or locally grown and cooked under household conditions In both cases the performance was up to the average for the rats in the stock colony on what is considered to be an optimal diet."

Their results confirm similar feeding experiments carried out in America by Kohman et al. (1937) over a period of four years They also found canned foods superior as a source for calcium

The extremely long periods in years over which canned foods can remain in good condition is shown by the interesting examinations summarised by Drummond et al (1930)

CHEMICAL CONTAMINATION

Health considerations only arise in connexion with tin and lead additions

Tin—The corrosion of the container with some solution of the tin is a problem of great importance, but that importance is economic and not a public-health question The original standard report on the subject (Buchanan and Schryver 1908) is now over 30 years old, and the tin content figures quoted are now valueless, for they refer to methods now obsolete. It is of interest from the almost entire failure to find genuine cases of tin poisoning. In spite of this fact they suggested that tin in quantities approaching gr. 2 per lb. justified the view that the food had become potentially deleterious. Personally I have never considered that the findings in the report justified this implication. Work by Bigelow and by Goss (1917) indicates that a large proportion of the tin in the food is in an insoluble form and therefore not readily absorbed.

Analyses show that the amount of tin is usually well below the tentative standard of gr. 2 per lb. Adam and Horner (1937) have made many such analyses of English canned fruits and vegetables. The highest figures they obtained are shown in table IV.

TABLE IV—TIN CONTENT OF CANNED FOOD

Food	Storage time	Plain cans	Lacquered cans	Remarks
		(parts per million)		
	months			
Gooseberries	14	200	51	Stored at 95° F
Plums	14	112	30	„ 72° F
„	14	313	52	„ 35° F
Asparagus	12	202	—	—
„	24	333	—	—
Carrots	27	152	—	—
Beans (in tomato sauce)	9	128	—	—

These are the highest figures under the most severe conditions and show that the figure (286 parts per million) given by Buchanan and Schryver (1908) is very rarely exceeded and the vast bulk of canned foods examined showed a much lower figure. As Hirst and Adam (1937) point out, commenting on these Campden experiments with lacquered cans (the usual containers) the tin content after a year's storage rarely exceeded 30 parts per million.

Many millions of tins of canned foods are consumed yearly, and, although I have continuously been on the look out for cases of tin poisoning both in the literature and in my own experience, I have only come across one possible case. Davidson (1927) reported that four members of one family at periods of half an hour to three hours after a meal developed headache, nausea, vomiting and abdominal pain. In one case the vomiting only came on after nine hours. Since tin to the amount of gr. 5·6 per lb. (and gr. 8·8 in another tin of the same consignment) was found in the tinned apricots suspected to be responsible tin poisoning was suggested. This particular consignment had been in stock for three years and the tins were rusted and the labels faded. It is not at all certain that this was tin poisoning, and other possibilities do not appear to have been explored. I think we can accept the view that for practical purposes tin poisoning from canned foods does not occur while at the same time recognising the possibility that in very exceptional circumstances so much tin might be present as to be deleterious. For instance I found fairly recently in one particular product of a firm of the highest repute as much as gr. 5 of tin per lb. This was an accident due to special circumstances which were ascertained and quickly remedied. Even with this high amount no evidence of any harm resulting was forthcoming.

To sum up under modern conditions tin poisoning is not a health hazard from tinned foods but it is desirable and important that all steps should be taken to keep the tin content as low as possible, and the old suggestion of a limit of 286 parts per million is a convenient working standard.

Lead, being cumulative in action, stands on a different footing to tin. The modern can needs a minimum of solder, and analyses show that very little lead is found in canned foods, and abnormal amounts are associated with faulty methods of preparation. Lampitt and Rooke (1933) examined 596 samples of tinned sardines and found 0–10 parts per million (414 tins), 11–20 parts (112 tins), 21–30 parts (27 tins), 31–40 parts (25 tins), and more than 40 parts (18 tins). The source of the lead was from the tin grills on which the sardines were cooked, the grills containing a large amount of lead. When newly coated block tin grills were used, the lead was only 7–10 parts per million. Except as a rare special hazard there is no risk of lead poisoning from canned foods and I know of no cases which have so resulted.

BACTERIAL INFECTIONS AND POISONINGS

Acute poisoning from the ingestion of infected food or of food containing bacterial toxins is by no means uncommon. The problem here is not to decide whether canned foods are ever responsible for such outbreaks, but to try and assess the relative risk as between canned foods and the same foods consumed either fresh, cooked, or preserved otherwise than by canning. Food poisoning is not notifiable (before Oct. 1, 1939), so no reliable figures for the whole country are available. Even for London and special areas where notification has been required over a number of years the data are of no value unless each reported outbreak is subject to expert study, for so many of the notified cases will not bear scrutiny either as to being food poisoning at all or as to the alleged food responsible. Several sources of information are, however, available.

In 1920 I tabulated 112 British outbreaks of which I had records between 1907 and 1918 (Savage 1920). The vehicles were as follows:—

Tinned foods (beef 9, tongue 3, salmon 6, herring 1, fruit 1)	20
Milk and milk products	16
Meat or fish not manipulated	23
„ foods slightly manipulated	10
„ „ heavily (pies 18, brawn 11, potted meat 3)	32
Other foods or unascertained	11
Total	112

This gave a percentage of 16·1 for canned foods.

The report of Savage and White (1925) on 100 food poisoning outbreaks included our own investigations of 83 consecutive outbreaks reported to us between June, 1921, and November, 1923. The vehicles were as follows:—

Tinned foods (beef 11, tongue 2, mutton 1, salmon 11, sardines 1, crustacea 2, fruit 2)	30
Milk and milk products	17
Meat or fish not manipulated	[illegible]
„ foods slightly manipulated	4
„ „ heavily	11
Fruit and vegetables (fresh 4, preserved 2)	6
Other foods or not definitely ascertained	11
Total	83

Of these 30 canned food outbreaks 22 are of the toxin type, including all the 14 meat outbreaks, 10 of the 14 being due to [illegible] products. The percentage of 36·1 for canned foods is mainly due to toxin outbreaks especially in association with canned beef.

Through the kindness of the Ministry of Health I was given access to their official records when preparing my Sedgwick memorial lecture delivered in U.S.A. in 1932 (Savage 1932) and although this was mainly concerned with [illegible] the two following lists are of interest. The vehicles of infection in 121 food-poisoning outbreaks in Great Britain 1919–31 associated with living salmonella strains was as follows.—

Canned foods (beef 2, salmon 4, fruit 2)	8
Milk and milk products	12
Meat or fish not manipulated	8
" foods slightly manipulated	10
" " heavily "	37
Other causes or not ascertained with certainty	46
Total	121

The percentage of canned food is 6 6 The vehicle in 70 "toxin" type of food-poisoning outbreaks in Great Britain during the same period was as follows —

Canned foods (beef 26, tongue 9, mutton 1, salmon 13, other fish or shell-fish 7, peas 2)	58
Slightly manipulated meat foods	5
Heavily " " "	5
Other foods	2
Total	70

The canned-food percentage is 82 9 Although I am unable to bring these figures up to date from a detailed study of outbreaks reported to the Ministry of Health since 1931, considerable information is available in the annual reports of the Chief Medical Officer to the Ministry, from which table V is compiled

TABLE V—FOOD-POISONING OUTBREAKS IN GREAT BRITAIN

Year	Genuine outbreaks	Toxin outbreaks				Non-toxin outbreaks	
		No	Vehicle			No	With canned food as vehicle
			Canned foods	Potted foods	Other		
1932	36	6	0	3	3	30	None mentioned
1933	66	21	14	3	4	45	Two canned jellied veal
1934	58	26	14		12	32	None mentioned
1935	125	47	14	7	26	78	None mentioned
1936	61	26	5	0	21	35	1 canned mutton
1937	83	22	13		9	61	None mentioned
6 years	429	148	51*	26	75	281	

* Figure obtained by dividing the undifferentiated outbreaks for 1934 and 1937 between the two vehicles in the same proportion as for the years in which they are differentiated.

The percentage of "toxin" outbreaks with canned foods as a vehicle is 34·6 Of all the outbreaks those from canned food constitute 12 6 per cent

Another source is the summaries in the *Bulletin of Hygiene*, which includes the majority of food-poisoning reports published in the recognised journals from most parts of the world This *Bulletin* was started in January, 1926, and I have been responsible for reading and summarising these papers (with a very few exceptions) from its inception I have been through the reports and taken out the vehicles of infection, and these figures are summarised in tables VI and VII

These tables, although interesting, are not a reliable picture of total incidence, for they only refer to published outbreaks, and these tend to be published either because of their magnitude, because of a special causation, or because they are intended to emphasise the relative importance of certain vehicles For example, duck's eggs as vehicles are over-emphasised, while staphylococcus outbreaks send up the custard-cake percentage. They show rather emphatically the small share that commercially canned foods have played during the last decade as a cause of large or fatal outbreaks of food-poisoning. The 8 out of 247 outbreaks were 2 botulism, 2 infected with salmonella bacilli, 1 tin-poisoning (the case mentioned above), 2 toxin outbreaks, and the other only an illustration of a canned food definitely infected, like any other food, after being opened

TABLE VI—OUTBREAKS OF FOOD-POISONING (EXCLUDING BOTULISM) 1926–38

Vehicle	Great Britain	U.S.A and Canada	Other foreign countries	Total
Meat or fish preparations	22	20	34	76
Milk and milk products ..	5	11	16	32
Pastry or cakes, cream or custard filled	3	22	1	26
Eggs (mainly duck)	3	0	15	18
Chemical poisoning (all non-tinned foods)	6	5	6	17
Tinned foods	2	2	2	6
Foods other than above	5	8	18	31
Total	46	68	92	206

Most of the outbreaks are due to specific bacilli, of which the salmonella group is the commonest Recently outbreaks have been associated with certain staphylococci which produce an endotoxin Botulism due to the toxins of *Clostridium botulinum* is another group very important from its high death-rate Other organisms are occasional causes of food-poisoning For practical purposes they fall into two groups those associated with the presence of living food-poisoning bacilli in the food and those in which a toxic action is exerted, either because the toxin-producing bacilli are dead and only undestroyed toxins are left, or because the organism only exerts its activity by produced toxins and it is not very material if the living bacilli are there or not The toxin outbreaks (excluding botulism) mentioned in many tables are of this type, and usually no living bacilli are present, but only the toxins

TABLE VII—BOTULISM OUTBREAKS 1926–38

Vehicle		Great Britain	U S A. and Canada	Other foreign countries	Total
Meat or fish preparations	Not tinned	2	1	5	8
Vegetable preparations		2	1	0	3
Home canned foods		0	27	0	27
Commercial canned foods		0	2	0	2
Doubtful		0	0	1*	1
Total		4	31	6	41

* Vehicle a mixture of blood, sausage, and preserved beans (not stated if the beans were tinned or preserved otherwise)

Botulism, from its recent association with canned foods, requires special mention. The earlier outbreaks were on the European continent, mostly in Germany, and were associated with such foods as ham and sausages From about 1915 *Cl botulinum* was recognised as responsible for outbreaks in U S A, and these were associated with canned foods Up to the end of 1935 there were 261 outbreaks (Meyer 1936) The vehicles in these outbreaks were as follows —

Commercially canned or preserved	47
Locally grown food, home canned	191
Unknown	23
Total	261

Of particular foods those most frequently involved were string beans 62, corn 28, olives 14, spinach 18, beets 11, and asparagus 10. This alarming problem was very thoroughly tackled in U.S.A. The spores of this organism are widely distributed in soil and very heat resistant. In consequence [illegible] it is partly a problem of avoiding contamination but mainly one of heating sufficient to destroy such spores. The scientific work has been so thoroughly done and the necessary factors of safety so fully followed by the trade that no outbreak of botulism in U.S.A. has resulted from food canned commercially in American factories since 1925. Tanner (1935) reports that the 19 U.S.A. outbreaks between 1929 and 1933 were 17 from home canned foods and 2 from imported foods.

There have been only 3 or 4 outbreaks of botulism in Great Britain, none from tinned foods but 2 from foods packed in glass jars.

From these various sources of information it is possible to derive some definite opinions. Tinned foods, in common with all other foods, have been responsible for three kinds of food poisoning—i.e., botulism, infection with living bacteria of food poisoning type, and the toxin type of outbreak. For botulism to result, it is necessary first for the food to be infected with the spores of *Cl. botulinum*, for the spores to develop into bacteria, and for the bacteria to produce sufficient toxin to cause symptoms. Fortunately food infection with these spores is rare. The heating which canning requires is a protection from risk, but, since the spores are peculiarly resistant, the original temperatures used were inadequate, and in certain parts of U.S.A. where there was a comparatively wide distribution of these spores in soil, outbreaks took place as already mentioned. Detailed scientific work has solved the problem, and botulism should never now develop in connexion with commercial canning. There is still some risk from home-canned goods stored in glass jars, and outbreaks in connexion with this class of goods have not yet been eliminated. This is not, however, a problem affecting commercially tinned foods.

As regards infection with living food poisoning type bacilli all the tables emphasise that these outbreaks have never been numerous with canned foods, and that improved methods have made them still less common. For this class of infection canned foods play a very minor part, and undoubtedly these foods are very much safer than ordinary foods.

The toxin type of outbreak is much more associated with canned foods. This we might anticipate, for in the processing the living bacilli are destroyed but the heating is not invariably successful in killing preformed toxins of those bacilli. Fortunately this type of food poisoning, although distressing, is extremely rarely fatal, the case mortality being less than 0.5 per cent. Also there is no doubt that the number of these toxin outbreaks associated with canned foods is decreasing. This is definitely my experience from over 35 years' continuous study of these food-poisoning outbreaks. This is particularly the case as regards canned beef and I agree with the writer of the Ministry of Health's report for 1936 when he states: 'Corned beef outbreaks which used to be the commonest "toxin" outbreaks have nearly disappeared. The efficiency of modern canning of beef is almost certainly the cause of their disappearance.' The tables, so far as they are available for this purpose, suggest this reduction; they do not, however, suggest an elimination, and these cases still occur. They are now mostly in connexion with fish products. I believe they could be eliminated, and this is highly desirable, for although they are very few in proportion to the food consumed, their occurrence is apt to keep up prejudice against canned foods.

Considering the whole of the data I think it is obvious that, as a source of food poisoning, canned foods at the present time are definitely safer than ordinary foods. They are protected foods and protected much more than ordinary foods from the risk of causing food poisoning. That they are not entirely immune is hardly to be anticipated and is no argument against their use. They are comparatively safer.

GENERAL CONCLUSIONS

(1) On the nutritive side, canned foods compare favourably with fresh foods, when allowance is made for the fact that the former are already prepared for use and the latter are subjected to any losses which may take place in domestic preparation and cooking. These facts apply qualitatively as well as quantitatively. So much attention in modern canning practice is paid to the preservation of the vitamins that, as regards vitamin content, they are not, in general, inferior to the same foods after ordinary cooking. In some cases they are definitely superior. The view that canned foods are devitalised foods (whatever that may mean) is not supported by nutritional research.

(2) On the chemical side there is no evidence that tin- or lead-poisoning now ever results from the consumption of canned foods. Faulty procedures may occasionally lead to considerable quantities of tin being present, and, since we have not sufficient information to say that chronic ill effects might not possibly occur, it is sound policy to take measures to reduce the tin content to as low a figure as possible. There is no evidence that any such chronic ill effects have ever resulted.

(3) Canned foods share with all other foods the risk of being a vehicle to cause food-poisoning. From a study of all the data it can be definitely stated that canned foods are now considerably less liable than ordinary foods to be a source of food poisoning. This is conspicuously so for the more dangerous outbreaks associated with the presence of living bacilli. Liability to cause the milder outbreaks of toxin type still exists but is being reduced, and even for this type their incidence, bulk for bulk, is less than that of other foods.

(4) As regards our food supply generally, canned foods can be accepted as a safe and convenient source and one without any special hazards—nutritional, chemical or bacterial. Their relative cost as compared with fresh foods, is outside the scope of this article. The chief drawback to their usage is the liability for the discarded tins to provide a serious problem in scavenging, especially in rural areas.

REFERENCES

Adam, W. B., and Horner, G. (1937) *J. Soc. chem. Industry*, 56, 329T.
Baker, A. Z., and Wright, M. D. (1935) *Biochem. J.* 29, 1802.
Buchanan, G. S., and Schryver, S. B. (1904) Local Govt Board Foods Rep. No. 7.
Daniel, E. P., and Rutherford, M. B. (1936) *Food Res.* 1, 341.
Davidson, A. (1927) *Med. Officer*, 38, 166.
Drummond, J. C., Lewis, W. R., Macara, T., Wilson, G. E., and Shipp, H. L. (1939) *Int. Tin Res. Development Coun. Publications*, No. 8.
Fixsen, M. A. B. (1935) *Nutrition Abstr. Rev.* 5, 231.
Golden, W., and Thomson, W. (19[illegible]) *J. Soc. chem. Ind.*, 53, 81.
Goss, B. C. (1917) *J. industr. Engng Chem.* 9, 144.
Henry, K. M., Houston, J., Kon, S. K., and Osborne, L. W. (1939) *J. Dairy Res.* 10, 272.
Hirst, F., and Adam, W. B. (19[illegible]) [illegible] Hydrogen Swells in Canned Fruit.
Kohman, E. F., Eddy, W. H., White, M. E., and Sanborn, N. H. (1937) *J. Nutrition* 14, [illegible].

Continued at foot of next page

THE SULPHONAMIDES IN WOUND INFECTIONS

A PROVISIONAL memorandum on the use of sulphonamide derivatives in the prophylaxis and treatment of wound infections is being distributed by the War Office to all officers of the R.A.M.C. The memorandum recommends that these compounds should be given a trial in the field, and that all wounds which appear likely to become the site of secondary coccal or gas-gangrene infection should receive a prophylactic course at the earliest opportunity and that this should be extended if infection supervenes.

The following general principles are laid down for administration:—

(1) A prophylactic course should occupy about 48 hours.

(2) Courses of treatment for established or developing infections should extend over 10 days, but if not effective by this time an interval of 48 hours should be allowed before continuing treatment.

(3) When an infection appears to be controlled, as judged by the temperature, small doses should be continued for a further 3–5 days in order to prevent relapses.

(4) The principle of effective treatment is to obtain a high blood concentration of the drug as rapidly as possible and to maintain this concentration at an effective level over a period of time. Because the drugs are rapidly excreted it is necessary, in order to maintain an effective level, to administer them four-hourly night and day.

PRECAUTIONS

The memorandum points out that certain individuals are unduly sensitive to the drugs and no evidence is yet available as to whether people suffering from shock may not be even more sensitive. It then sets out the reactions that may be met, with comments on their avoidance and treatment.

(1) *Mild Reactions:*

Cyanosis.—Incidence reduced by prohibiting sulphur-containing foods and especially by the avoidance of saline purges and drastic purges. Liquid paraffin the best laxative. Cyanosis may be temporarily dispersed by giving 0.5 to 1.0 g per day of methylene blue by the mouth. Cyanosis per se should not prohibit continuance of treatment.

Acidosis.—Treat by oral administration of sodium bicarbonate.

Drug fever.—Requires to be distinguished from fever due to recrudescence of infection. If true drug fever, omit drug.

Dermatitis.—Omit drug and induce diuresis with water or simple diuretic. May be the prelude of more serious complications. Check leucocyte-count if possible.

Dizziness, headache.—If intolerable, administer fluids freely. Check leucocyte-count if severe.

Leucopenia.—Negligible unless rapidly progressive to below 3000 leucocytes per c.mm.

Hæmaturia (M. & B. 693 only).—Administer fluids freely.

Jaundice and neuritis.—Omit drug. Induce diuresis. (See hæmolytic anæmia.)

(2) *Serious Reactions:*

Agranulocytosis.—Occurs after 10 days or more of treatment. Incidence rare. Leucocyte-count only method of diagnosis. Other symptoms: headache, deterioration of condition, fever, sore throat. Treat by transfusion and Pentnucleotide.

Hæmolytic anæmia.—Occurs early (2–4 days). Incidence rare. Mortality low. Early signs jaundice and hæmoglobinuria. Omit drug, induce diuresis, transfuse if necessary.

DOSAGE

(1) *Sulphanilamide.*—Tablets should be powdered and administered suspended in milk or water. For *prophylaxis*, 4 g (8 tablets) should be given statim, followed by 2 g (4 tablets) in four hours' time, followed by 1 g. (2 tablets) four-hourly night and day for 48 hours. For *treatment*, 4 g (8 tablets) statim, followed by 2 g (4 tablets) in four hours, followed by 1 g four-hourly night and day for a maximum period of 10 days. If infection is still uncontrolled allow an interval of 48 hours and then repeat the same course from the beginning or, if available, change on to M. & B. 693. If infection appears to be controlled during the first or later courses reduce dose to 0.5 g (1 tablet) four-hourly and continue for 3–5 days after the temperature has become normal.

During the first course of treatment if no clinical effect is evident within three days it is recommended that a change be made to M. & B. 693. But if some clinical effect is obvious it is worth while pursuing the full course of sulphanilamide.

(2) *M. & B. 693.*—Tablets should be powdered and administered in milk or water. If vomiting is troublesome split the doses and give at shorter intervals—e.g., instead of administering 1 g. four-hourly give 0.5 g two-hourly. For *prophylaxis*, 3 g (6 tablets) statim, followed by 2 g (4 tablets) in four hours' time, followed by 1 g (2 tablets) four-hourly night and day for 48 hours. For *treatment*, the same procedure as for sulphanilamide except that the initial dose is 3 g. (6 tablets) instead of 4 g.

(3) *M. & B. 693 Soluble.*—This substance is of great value when swallowing is impossible or when gastric upset prevents absorption of the oral compound. It consists of a 33 per cent. solution (1 g. in 3 c.cm.). Injections are best made intramuscularly, but as the solution is alkaline some reaction at the site of the needle puncture is common unless care is taken to inject deeply and avoid escape into the subcutaneous tissues. The solution may also be injected intravenously if the dose is diluted with 20 c.cm. of sterile distilled water or normal saline. The drug may also be added in suitable quantity to intravenous drop transfusions of saline or blood (at the rate of 1 g per four hours). For *prophylaxis and treatment*, 1 g (1 ampoule) four-hourly night and day, the prophylactic course being completed in 48 hours. The treatment course may be continued for ten days, but it is strongly recommended that a change over to the oral compound be effected at the earliest opportunity. The soluble compound finds its best use in the initial phases of a course of treatment and should not be regarded as a substitute for the oral compound; it should only be used for a continuous course when oral therapy is impracticable.

SIR W. SAVAGE: REFERENCES (*continued*)

Lampitt, L. H., and Rooke, H. S. (1933) *Analyst*, 58, 733.
Le Mehauté, P. J., Machebœuf, M. A., Tcherniakofsky, P., and Cheftel, H. A. (1934) *Bull. Acad. Méd.* 8, 252.
Meyer, K. F. (1936) *California west. Med.* 44.
Olliver, M. (1936) *J. Soc. chem. Industry*, 55, 153;
— (1938) *Analyst*, 63, 742.
Roscoe, M. H. (1930) *Biochem. J.* 24, 1754.
Savage, W. (1920) Food Poisoning and Food Infections, Cambridge.
— (1932) *J. prevent. Med.* 6, 425.
— and White, P. B. (1925) *Spec. Rep. Ser. med. Res. Coun., Lond.* No. 92.
Tanner, F. W. (1935) *Amer. J. pub. Hlth*, 25, 301.
White, C. F. (1936) *Pub. Hlth*, 49, 180.

MEDICINE AND THE LAW

X-ray Treatment Economies

A St Pancras inquest a fortnight ago disclosed the difficulties and danger due to the present shortage of equipment at one of our [illegible] hospitals. The deceased, injured by [illegible] between two vehicles, was brought to hospital for examination and was afterwards taken home. He died from broncho-pneumonia five days after the accident. Two ribs had been fractured but no clinical evidence of the fractures was found either at the hospital or by the doctor who treated the patient in his own home. The house surgeon explained to the coroner that the outpatient department was closed and the facilities were affected by war-time conditions. Ordinarily there would have been an X-ray examination but only one small portable machine was now available. Had the patient been X-rayed he would, no doubt, have been kept in hospital. In returning a verdict of death from natural causes, the coroner remarked that fatal damage to the patient's lungs was probably caused at the time of the accident and that no amount of subsequent treatment could have done anything.

Critics of the severity of the blackout system are already comparing the known increase in casualties due to this cause with the potential casualties likely to result from an air raid. The existing needs of a big hospital in the heart of London may similarly be balanced against the prospective needs of institutions (possibly at present unoccupied) elsewhere. The lesson of the St Pancras inquest will no doubt be noted by the responsible authorities, whoever they may be.

A Wife's Shock

Damage by shock was not deemed either too trivial or too remote to prevent the recovery of the doctor's fee in a recent case reported by the *Solicitors' Journal*. A firm of bookmakers obtained judgment for £50 against a defendant named S. Hamer, apparently resident at Ashcroft Road, Eccles. The sheriff's officer was instructed to levy execution at that address but reported that there was no such place. The bookmakers made further inquiries and found a Mr Hamer living at Agecroft Road East, Prestwich. The bailiffs were accordingly put in at the latter address. Ascertaining that Mr Hamer lived there, they walked in, produced their writ to Mrs Hamer and explained that they had come to levy execution. They were barking up the wrong tree. The Mr Hamer of Agecroft Road East had never had any transactions with the defendant bookmakers. Mrs Hamer was much upset and required medical attention. This being a consequence of the bailiffs' unlawful intrusion, the Salford county court judge, in giving judgment for 15 guineas against the bookmakers for the trespass, saw no difficulty in adding to this amount the sum of 5 [illegible] for the doctor's fee.

Lunacy and Intention to Desert

Three years' desertion is a ground for divorce under section 2 of the Herbert Act but the remedy is withheld if the deserting spouse is certified as a lunatic. Desertion involves an intention to desert; a lunatic is incapable for this purpose of forming an intention. In Bennett v. Bennett Mr Justice Bucknill left the door open for medical evidence to prove that the patient although certified and detained in a mental hospital, was nevertheless capable of forming a rational judgment. The Court of Appeal however seems to have decided this year in Williams v. Williams that if the spouse against whom the allegation of desertion is made has been certified, it is impossible to draw any inference of capacity to form an intent. The point arose lately in Rushbrook v. Rushbrook where the husband, having proved the initial separation and desertion, sought to show by medical evidence that during the period of certified insanity, the wife was able to exercise a rational judgment about her relations with her husband, so that the statutory period of continuous desertion (three years immediately preceding the petition) might have been established. Mr Justice Langton found himself bound by the decision of the Court of Appeal and dismissed the petition.

The law, it will be seen, refuses to accept the view that a mental patient, in the circumstances here described, can consciously refuse to go back to her husband. Yet, if it had been a question of criminal responsibility in an assize court, it might conceivably have been ruled that she was capable of forming a guilty intent to murder him.

THE MAUDSLEY HOSPITAL

UNDER PROFESSOR MAPOTHER

The resignation of Prof. Edward Mapother from his position as superintendent of the Maudsley Hospital is a reminder of the outstanding part he has played in the development of psychiatry in England. Since its opening in 1923, the Maudsley has come more and more to bear the stamp of his vigorous and critical mind, and of his enterprising and far-sighted policy. Rejecting almost violently everything that seemed likely to separate psychiatry from medicine, commonsense, or the public good, he has pushed forward the advances which before the war were making psychiatry one of the soundest, most active, and socially beneficial of all the branches of medicine. He had at heart the extension of psychiatric facilities to all classes of the population, the discovery of better methods of treatment as the result of exact investigation, and the thorough training of all who practise psychological medicine.

Mapother's position and achievements can be compared to those of Meyer in the U.S.A. and of Bleuler in Switzerland. It is as an educationist that his most important work has been done. Under him the Maudsley became a school of London University, with chairs in psychological medicine and the pathology of mental diseases, and the centre for the D.P.M. course. He has gathered round him during these fifteen years a brilliant group of younger men, themselves of growing influence, who look to him as their teacher. It is difficult to see where the future leaders of psychiatry in England could be found if his pupils and colleagues were to be excluded. Under Mapother the Maudsley has grown from a small hospital with a staff of only four doctors to a great psychiatric clinic with twenty-two regular physicians, an active group of research workers and postgraduate students from many countries. When Mapother began his Maudsley work he had a choice before him. He could make it a training ground for the doctors of the L.C.C. mental hospitals and a clinic for the treatment of early cases on accepted lines, or he could aim at something which would include all this but be much more. It was the latter course that he decided to follow. He did not neglect the opportunities which the close connexion of the Maudsley with the mental hospitals of London provided but he saw that a modern clinic and psychiatric hospital in London [illegible] much more than a local sphere of influence. The width of his aims became coherently evident as the years went on. Two months ago the Chancellor of the University declared open a new children's wing—the latest of a series of pioneer projects which, having been realised at the Maudsley, were ready to demonstrate their worth and spread outwards. The training of psychiatric social workers, the staffing of observation wards with expert psychiatrists seconded from mental hospitals, and the creation of psychiatric outpatient departments at municipal hospitals are among the other plans he translated from paper to practice. It is perhaps easier in psychiatry than in other branches of medicine to pursue the ephemeral, espouse the meretricious, and reject what is sober and painstaking. Under Mapother's direction the Maudsley did not fall into these ways; indeed some might hold that it has too critically abstained from giving itself to the advocacy of attractive half-truths, questionable novelties and stimulating errors. It is, however, a consistent policy that Mapother has followed, a policy that has done much to make psychiatry recognised as an integral part of scientific medicine and made it capable of sustaining the rôle.

Enthusiasm for research is not always the mark of the active administrator. But the fostering of research has been one of Professor Mapother's major preoccupations, and the fruits have been noteworthy. The support of the Commonwealth Fund and later of the Rockefeller Foundation, given in increasing measure to the projects he sponsored at the Maudsley, has been well earned. But it would not have been earned if Mapother had not steadfastly maintained that an active spirit of research is what gives life and energy to any hospital, especially one that has undertaken advanced teaching in a new field. There was always an intimate connexion between the steady growth of his hospital in beds, staff, and psychotherapeutic and other outpatient work on the one hand, and its increasing importance in teaching and research on the other. Mapother has been as unwilling to recognise any sharp distinction between these things even as in his conception of the unitary human being he has refused to distinguish body and mind, or in the graded series of mental disorders to separate the more obviously psychogenic from the hereditary.

The remarkable success of Mapother's work would not have been possible if those who controlled the hospital had pursued a cautious and conventional policy, if they had valued smooth running more than constructive development, independent thought would have been discouraged, teaching and research put into the background, and clinical work restricted to obvious time-honoured activities. It is a testimony to the wisdom of the London County Council that they have so consistently recognised Mapother's abilities and given him the support and freedom which enabled him to make the Maudsley one of the great psychiatric centres of the world.

He retires at the same time as another doctor who served the L C C well, it is the strength of our system of local government that it gives scope to such men as Menzies and Mapother. Their retirement marks the end of the chief phase of their activities but not, it may be hoped, the end of their productive work. The war has cut short much that had been planned—it is no secret that the reorganisation of the Maudsley staff was well under way and was to have been Mapother's final contribution to the causes he had at heart. But with release from administrative burdens will no doubt come improvement in health. Professor Mapother retains his chair in the University; he has leisure at last for writing down his observations and theory of psychiatry to which he has devoted so much thought, and his great experience in the problems of war neurosis is available and should be utilised. It would indeed be a loss if his personal abilities and the abilities of the hospital which is so pre-eminently his handiwork were not both to be used to the full during this war and afterwards.

THE NEW ENDOCRINOLOGY

A series of articles by Prof E C DODDS, F.R C P., *director of the Courtauld institute of biochemistry at the Middlesex Hospital, based on lectures delivered at the British Postgraduate Medical School*

V—THE CORPUS-LUTEUM HORMONE

WITH the isolation of œstrogenic substances in a stable form it was felt at first that the problems of the ovarian secretion had been solved, since by their administration it was possible to reproduce an apparently normal sexual cycle in the ovariectomised rodent. Clinical experiments were begun very early, and a large number of papers appeared, describing results from the use of "œstrin" injections. These reports however were mainly disappointing, and that such experiments were doomed to failure is obvious when the complex nature of ovarian secretion is understood. When the experiment ascended higher in the scale from the rat to the rabbit it was quickly discovered that œstrone could not replace the ovarian function. It was through a study of pseudopregnancy in the rabbit that the corpus-luteum hormone was actually isolated.

In the rabbit ovulation occurs only after coition. This is due to a complex reflex in which the anterior lobe of the pituitary is involved. This organ secretes the hormone which causes rupture of the follicle and ovulation. If impregnation takes place it is followed by enlargement of the uterus together with very definite changes in the mucosa. If, on the other hand, there is no fertilisation, as happens when a doe is mated with a sterile vasectomised buck, the pituitary reflex occurs but pregnancy of course does not supervene. The uterus nevertheless goes through the same series of changes—namely, very great enlargement of the muscle and a characteristic thickening of the mucous membrane with a great increase in glands. This alteration of the mucosa is known as the progestational phase, and is essential before the ovum can be implanted.

This condition is known as pseudopregnancy, and it continues for as long as the corpus luteum survives. If œstrone were the only secretion of the ovary, it should be possible to produce the uterine changes of pseudopregnancy by the injection of this substance into the ovariectomised doe. This, however, cannot be done. The injection of œstrone into such an animal causes enlargement of the uterus, mainly through development of the muscle, but the mucous membrane does not enter the characteristic progestational phase nor do the glands develop in complexity.

It follows therefore that the ovary must produce in addition to oestrone another hormone. This was first demonstrated by W. M. Allen and G. W. Corner, who were able to show that if, in addition to oestrone the ovariectomised rabbit was injected with an alcoholic extract of the corpus luteum, the complete series of pseudopregnancy changes could be reproduced. They demonstrated that it was essential first of all to have the action of oestrone, followed by that of the corpus luteum hormone; neither alone will suffice.

This work was applied subsequently to the primates, and it was found possible to reproduce completely the characteristic menstrual changes by the injection of both oestrone and the progestational hormone. The well known diagram (fig. 1) adapted from Robert Meyer indicates the present view with regard to the hormonal control of the menstrual cycle in the human female. It will be seen that, as the follicle matures, oestrone is secreted, thus building up the muscle but having very little effect on the mucosa of the uterus. The follicle ruptures, ovulation follows and the corpus luteum is formed. This secretes the progestational hormone which, acting upon the uterus already sensitised by oestrone, produces the thickening of the mucosa, which is characterised by a great increase in the complexity of the glands and corresponds to the progestational change in the rabbit. If the ovum has been fertilised, the fertilisation has taken place high up in the tube, and the segmented ovum enters the uterus at the height of the progestational change. Nidation then follows, and the corpus luteum persists. If, on the other hand, fertilisation does not occur the corpus luteum regresses and the elaborate uterine mucosal structure is left without hormonal support. The consequence is degeneration and hæmorrhage, of which menstruation is the outward and visible sign. If the primary cycle is to be reproduced in the ovariectomised animal this complex cycle of secretion must be imitated. This was first done by Kaufmann for the human female; he was able to produce menstruation in an ovariectomised woman by injecting first oestrone and later the progestational hormone.

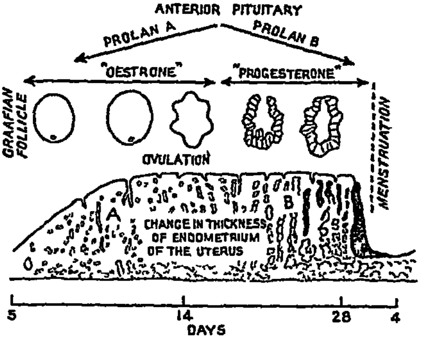


FIG. 1—Stimulated by the gonadotrophic hormone of the anterior pituitary (prolan A and prolan B) the ovary elaborates œstrone which functions during the first half of the menstrual cycle (A) and the corpus luteum hormone progesterone which completes the cycle (B).

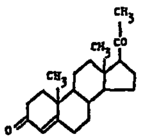


FIG. 2—Progesterone.

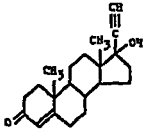


FIG. 4—Pregneninolon.

Chemical work on the hormone progressed and it was crystallised by Butenandt and by Allen. Its constitution was proved in the substance called progesterone (fig. 2), but its supply presented very great difficulties, since the amount of the corpora lutea available was strictly limited and the yield of crystalline material is poor. Fortunately it was then shown that it could be obtained by the procedure of sterol disintegration referred to in my article on the male sex hormone. In this case stigmasterol obtained from the soya bean is the starting material, and from this it is possible to produce progesterone (fig. 3).

Progesterone is quite inactive by mouth, but recently a derivative has been prepared in which the ethinyl group is introduced on to the 17 carbon atom. This substance was first prepared by Inhoffen, and is known as pregneninolon (fig. 4). By the use of ethinyl œstradiol and pregneninolon it is possible to reproduce the whole of the menstrual cycle by oral administration. Many actions have been claimed for pregneninolon, and it has been widely used in cases of threatened abortion and also in certain types of menorrhagia—especially those associated with too great a secretion of œstrone.

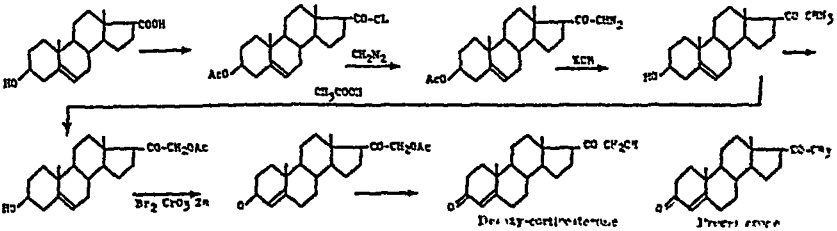


FIG. 3—Degradation from stigmasterol.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month, his name can be seen later in the half-yearly index

FROM RECHAUFFEUR

I

WHEN lunching at the club at my hospital five or six years ago with a very presentable student, I was surprised to hear him say, when I asked him if he was going in for a house-appointment, "No, I am going in for intestinal lavage so as to make some money." He showed up at that moment in unfortunate contrast to Joseph Conrad's "Lord Jim," but I had perhaps unwittingly caught him in that cynical mood which may overtake any of us. It is one of the pleasantest recollections of pre-1914 hospital days, as I suppose we must now call days before the late war, that we had little foresight of anything beyond the next fence, whether it was an examination or an inter-hospital cup-tie Getting qualified at all seemed so fantastic, that the possibility of its being a starting-off place rather than a distant goal never entered our thoughts There were so many enjoyable sidelines in those happy pre-1914 days Promenade concerts or the opera were opportunities not to be missed, and many a student would stand hours for a five-shilling seat at Covent Garden Though the Old Vic was not its present self, Granville Barker was doing his pioneer work in the theatre An occasional visit to the Russian ballet was not too expensive for our slender means, and one could get a very fair one-shilling four-course dinner at the Diner Français We were lucky in those days no doubt, but I dare say the post-war student, in spite of a host of modern luxuries such as swimming-baths and motor-cars, knows as well as we did how to make the best use of his leisure—not to mention his hours in hospital

The contrast between this Arcadian existence and the first entry into general practice was lessened because one had to watch one's step But many surprising things had to be learnt—for example, that it was permissible to charge five shillings for syringing out the external auditory meatus, which at the first blush appeared to be worth about twopence. One was unable to barge into a fellow-practitioner's consulting-room to talk over a simple case or two If he is to be a success at all, the newly fledged G P has to learn beyond question the correct orientation towards the British public This mystery might with advantage be broached before he leaves hospital I cannot help wondering to what extent freemasonry operates in student days in orientating the future doctor to medicine and practice respectively. Freemasonry is a very strong force in the medical profession, but not being a freemason myself, I am unable to say, except by indirect observation.

In general practice it is unfortunate that medicine and practice are not synonymous That they must be combined to make a good practitioner is obvious, but it is not always so obvious that the basis of practice is a devotion to medicine Only about half of the members of the B M A are anything like regular attendants at the local branch meetings, and it is, of course, at such meetings that the continuity between post-graduate and student training is to be found. The two leading members of my own branch, one a senior hospital surgeon and the other an M O.H, are almost always present, even when the subject in hand hardly touches their own specialties and it is as much this spontaneous attendance which makes them our recognised leaders, as their undoubted professional excellence. In our profession coöperation as opposed to competition marks the professional man of standing

* * *

The public often takes an unorthodox view of medical practice Mrs Jones likes Dr A because he "believes in injections," and Mrs Smith interests herself in Dr B because he tells her about his cases. The public likes the medical man to be broad minded, by this it means that he subscribes to some plausible and easily understood theory of disease, such as that all illness is due to glands (endocrine imbalance) or imperfect elimination, or that all ills are curable by osteopathy or suggestion This point of view is interesting, because the public unconsciously sees to it that the student's education is kept strictly orthodox by the General Medical Council While people rate us for being narrow-minded in the matter of, say, osteopathy, the General Medical Council, a statutory body on which only one layman is sitting, makes sure that the student is so that he shall never have any truck with non-scientific theories of medicine

Incidentally, it is interesting that the General Medical Council is left in the hands of the profession It must be a piece of unconscious wisdom of the herd, for in all other departments it shows the greatest mistrust of the expert The head of the church itself is a layman, and a statesman appoints its bishops, not to mention the judges All the departments of state are presided over by laymen, who together form the cabinet, and even in the law-courts the supreme decisions are left in the hands of twelve laymen. But by some strange and fortunate arrangement the medical profession is left to its own devices, and has an absolute sway over the training and the conduct of its members

The dangers of orientation to public opinion are considerable. I remember a patient of mine who on returning from India was advised by her doctor there to see a gland specialist of great eminence. She had a rash and was treated for menopausal symptoms with a very expensive polyglandular proprietary preparation (harmless enough in itself) for six months She then at my request saw a skin specialist, who found she had leprosy Until then, thanks to a popular cult, no attempt at a diagnosis had been made and an important period for treatment had been irreparably lost. A famous homœopathic specialist, who had been called to the husband of a patient of mine, told me he could cure cancer The husband had a carcinoma of the rectum, from which my patient's first husband had also suffered, and died with hæmorrhage During the period of our "collaboration" I was asked to take various readings of the blood-pressure and so on, which could have had no sort of relation to the disease Eventually, I heard that the man had died of bronchitis just at the moment that he was turning the corner owing to the great skill of the specialist ! Unfortunately, the specialist was a qualified man, so it was impossible for me to refuse to collaborate—or wasn't it ?

Some years ago a doctor accused his profession of being full of jealousy. When he was severely reprimanded by a colleague for [illegible] and [illegible] he replied that it was the only fault in an otherwise superlatively excellent body of men. Jealousy is perhaps the commonest of human faults, though only the introspective know how common it is. Its germ is to be found in self esteem, and when self esteem is damaged, the self endeavours to place the blame on something or someone outside. Psychological methods have succeeded in replacing the Victorian ideal of self respect by the Socratic one of self knowledge, but the generality of mankind lag behind such progress. On his way from Lancashire to Kent a surgical friend of mine stayed with three colleagues; all, he said, were unanimous in considering their immediate professional neighbours rogues but the doctors who lived ten miles away were the best of fellows. He evidently felt that the rogues of whom they complained were merely the pegs on which they could when necessary hang their damaged self esteem or fear of failure. If there are still people who worship self respect or prestige let them study the character of Iago and especially his opening speech.

As to self knowledge, it is a bitter pill and has to be swallowed when a complicated edifice of clinical misapprehension comes toppling down. The decision has to be made that, for the sake of the patient, the diagnosis must be changed at the expense of self esteem. Confession is good for the medical soul. I well remember confiding a professional disaster to a friend. When I had finished my outpouring, he nodded very sympathetically, but his thoughts were elsewhere. He replied "I've been frightfully worried by a case of my own . . ." By confiding his trouble to me in return, he was unconsciously giving me much comfort. But it was only when I heard a very responsible surgeon say "I see that beastly wound (it was a bad postoperative faecal fistula) all night and half the day" that I realised for the first time that the cross of self blame is perhaps the worthiest that we can carry in professional life.

TREATMENT OF TUBERCULOSIS

WITH the object of remedying defects in the country's tuberculosis services, to which attention has been drawn by correspondents in the *Times* and elsewhere, the Minister of Health invited a deputation, composed of representatives of the National Association for the Prevention of Tuberculosis, the Joint Tuberculosis Council and the Tuberculosis Association, to meet him on Oct. 27. As a basis for discussion the deputation presented a memorandum with the following main points:

1. A detailed plan should be drawn up to release more beds for tuberculosis cases, particularly for those in the infective stages. This can be best achieved by releasing certain institutions altogether and reserving them exclusively for tuberculosis, for it is undesirable [illegible] patients and casualties under the same roof.

[illegible] large numbers of people from [illegible] has led to certain financial [illegible] evacuating or [illegible] evacuated [illegible] that a [illegible] payer [illegible] beds [illegible] for [illegible]

[illegible] lying hospitals to which surgeons and instruments have been sent are not yet in a position to receive patients.

4. There is a shortage of beds for cases of non-pulmonary tuberculosis. It is important for these patients, most of whom are children, that treatment should be started promptly if deformity of limb and abscess formation with secondary infection are to be avoided.

5. The memorandum offers suggestions regarding the routine examination of militiamen and the investigation of suspected cases of pulmonary tuberculosis in members of the fighting forces. If proper attention is given to these matters the Ministry of Pensions will avoid many of the mistakes in assessing claims that were made in the last war and the country will be saved a considerable sum of money.

To this Mr. Elliot replied that he is having the greatest difficulty in persuading people that hospital services are available now just as before the outbreak of war. Although some patients were discharged from sanatoria and other institutions to provide accommodation for casualties, about two thirds of the 28 000 beds provided for the treatment of tuberculosis in England and Wales remained available throughout the early weeks of the war for their peace-time purpose, though naturally this proportion varied in different parts of the country. If through some misunderstanding actively infectious cases were discharged they should be sought out and brought back for treatment. An instruction issued on Oct. 4, he said, specially emphasised the importance of the tuberculosis services. Steps have been taken to remove any misunderstanding which might have led to the refusal of residential treatment to tuberculous patients in need of it, and also to enable a substantial number of smaller tuberculosis institutions originally included in the casualty scheme to return wholly to their normal functions. This has made available some 5000 more beds. In addition, as more and more of the hutted annexes to hospitals are completed more and more beds at present allotted to casualties will be released. Other services are also returning to normal. In London, for example, the dispensary services, after an initial lull, and difficulties owing to the temporary transfer of personnel, are resuming almost pre-war activity. In some reception areas these services have indeed been expanded. Finally, the Minister suggested that a small liaison committee should be appointed which could report to him how the steps so far taken are working in practice.

"If you find your friend's eyes getting accustomed to the black-out quicker than yours are, try a bottle of cod liver oil, or halibut liver oil, and if that fails go and see your doctor."—Prof. H. Hartridge in "The World Goes By" on the wireless on Oct. 25.

"I would make at least one exception to the testimonial in favour of prepared foods—the small segments of cheese issued wrapped up in tinfoil. Compared with ordinary cheese they give a very poor return. They may be handy but they are not good value."—From a personal letter to the Editor.

"The government of *England* will never rise to so exalted a pitch of glory as that of *Rome*, nor will its end be so fatal. The *English* are not fired with the splendid folly of conquests, but would only prevent their neighbours from conquering. They are not only jealous of their own Liberty, but even of that of other nations. The *English* were exasperated against *Lewis* the Fourteenth for no other reason but because he was ambitious, and declared war against him merely out of levity, not from any interested motives."—Voltaire in Letters concerning the English Nation, 1733.

[illegible] Library

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index

FROM RECHAUFFEUR

I

WHEN lunching at the club at my hospital five or six years ago with a very presentable student, I was surprised to hear him say, when I asked him if he was going in for a house-appointment, "No, I am going in for intestinal lavage so as to make some money." He showed up at that moment in unfortunate contrast to Joseph Conrad's "Lord Jim," but I had perhaps unwittingly caught him in that cynical mood which may overtake any of us It is one of the pleasantest recollections of pre-1914 hospital days, as I suppose we must now call days before the late war, that we had little foresight of anything beyond the next fence, whether it was an examination or an inter-hospital cup-tie Getting qualified at all seemed so fantastic, that the possibility of its being a starting-off place rather than a distant goal never entered our thoughts There were so many enjoyable sidelines in those happy pre-1914 days Promenade concerts or the opera were opportunities not to be missed, and many a student would stand hours for a five-shilling seat at Covent Garden Though the Old Vic was not its present self, Granville Barker was doing his pioneer work in the theatre An occasional visit to the Russian ballet was not too expensive for our slender means, and one could get a very fair one-shilling four-course dinner at the Diner Français We were lucky in those days no doubt, but I dare say the post-war student, in spite of a host of modern luxuries such as swimming-baths and motor-cars, knows as well as we did how to make the best use of his leisure—not to mention his hours in hospital

The contrast between this Arcadian existence and the first entry into general practice was lessened because one had to watch one's step But many surprising things had to be learnt—for example, that it was permissible to charge five shillings for syringing out the external auditory meatus, which at the first blush appeared to be worth about twopence One was unable to barge into a fellow-practitioner's consulting-room to talk over a simple case or two If he is to be a success at all, the newly fledged G P. has to learn beyond question the correct orientation towards the British public This mystery might with advantage be broached before he leaves hospital I cannot help wondering to what extent freemasonry operates in student days in orientating the future doctor to medicine and practice respectively. Freemasonry is a very strong force in the medical profession, but not being a freemason myself, I am unable to say, except by indirect observation

In general practice it is unfortunate that medicine and practice are not synonymous That they must be combined to make a good practitioner is obvious, but it is not always so obvious that the basis of practice is a devotion to medicine Only about half of the members of the B M.A are anything like regular attendants at the local branch meetings, and it is, of course, at such meetings that the continuity between post-graduate and student training is to be found The two leading members of my own branch, one a senior hospital surgeon and the other an M O H, are almost always present, even when the subject in hand hardly touches their own specialties, and it is as much this spontaneous attendance which makes them our recognised leaders, as their undoubted professional excellence In our profession coöperation as opposed to competition marks the professional man of standing

* * *

The public often takes an unorthodox view of medical practice. Mrs. Jones likes Dr A because he "believes in injections," and Mrs Smith interests herself in Dr B because he tells her about his cases The public likes the medical man to be broad-minded, by this it means that he subscribes to some plausible and easily understood theory of disease, such as that all illness is due to glands (endocrine imbalance) or imperfect elimination, or that all ills are curable by osteopathy or suggestion This point of view is interesting, because the public unconsciously sees to it that the student's education is kept strictly orthodox by the General Medical Council While people rate us for being narrow-minded in the matter of, say, osteopathy, the General Medical Council, a statutory body on which only one layman is sitting, makes sure that the student is so that he shall never have any truck with non-scientific theories of medicine

Incidentally, it is interesting that the General Medical Council is left in the hands of the profession It must be a piece of unconscious wisdom of the herd, for in all other departments it shows the greatest mistrust of the expert The head of the church itself is a layman, and a statesman appoints its bishops, not to mention the judges. All the departments of state are presided over by laymen, who together form the cabinet, and even in the law-courts the supreme decisions are left in the hands of twelve laymen But by some strange and fortunate arrangement the medical profession is left to its own devices, and has an absolute sway over the training and the conduct of its members

The dangers of orientation to public opinion are considerable I remember a patient of mine who on returning from India was advised by her doctor there to see a gland specialist of great eminence. She had a rash and was treated for menopausal symptoms with a very expensive polyglandular proprietary preparation (harmless enough in itself) for six months She then at my request saw a skin specialist, who found she had leprosy Until then, thanks to a popular cult, no attempt at a diagnosis had been made and an important period for treatment had been irreparably lost. A famous homœopathic specialist, who had been called to the husband of a patient of mine, told me he could cure cancer The husband had a carcinoma of the rectum, from which my patient's first husband had also suffered, and died with hæmorrhage During the period of our "collaboration" I was asked to take various readings of the blood-pressure and so on, which could have had no sort of relation to the disease Eventually, I heard that the man had died of bronchitis just at the moment that he was turning the corner owing to the great skill of the specialist! Unfortunately, the specialist was a qualified man, so it was impossible for me to refuse to collaborate—or wasn't it?

Some years ago a doctor accused his profession of being full of jealousy When he was severely reprimanded by a colleague for mud throwing, he replied that it was the only fault in an otherwise superlatively excellent body of men Jealousy is perhaps the commonest of human faults, though only the introspective know how common it is Its germ is to be found in self esteem, and when once this is damaged, the self endeavours to place the blame on something or someone outside Psychological methods have succeeded in replacing the Victorian ideal of self respect by the Socratic one of self knowledge, but the generality of mankind lag behind such progress On his way from Lancashire to Kent a surgical friend of mine stayed with three colleagues, all, he said, were unanimous in considering their immediate professional neighbours rogues, but the doctors who lived ten miles away were the best of fellows He evidently felt that the rogues of whom they complained were merely the pegs on which they could when necessary hang their damaged self esteem or fear of failure If there are still people who worship self respect or prestige, let them study the character of Iago and especially his opening speech

As to self knowledge, it is a bitter pill and has to be swallowed when a complicated edifice of clinical misapprehension comes toppling down The decision has to be made that, for the sake of the patient, the diagnosis must be changed at the expense of self-esteem Confession is good for the medical soul I well remember confiding a professional disaster to a friend When I had finished my outpouring, he nodded very sympathetically but his thoughts were elsewhere He replied, I've been frightfully worried by a case of my own ' By confiding his trouble to me in return, he was unconsciously giving me much comfort But it was only when I heard a very responsible surgeon say, "I see that beastly wound (it was a bad postoperative fæcal fistula) all night and half the day ' that I realised for the first time that the cross of self blame is perhaps the worthiest that we can carry in professional life

---

TREATMENT OF TUBERCULOSIS

WITH the object of remedying defects in the country's tuberculosis services, to which attention has been drawn by correspondents in the *Times* and elsewhere, the Minister of Health invited a deputation, composed of representatives of the National Association for the Prevention of Tuberculosis, the Joint Tuberculosis Council and the Tuberculosis Association, to meet him on Oct 27 As a basis for discussion the deputation presented a memorandum with the following main points

1 A detailed plan should be drawn up to release more beds for tuberculosis cases, particularly for those in the infective stages This can be best achieved by releasing certain institutions altogether and reserving them exclusively for tuberculosis for it is undesirable to house tuberculous patients and casualties under the same roof

2 The evacuation of large numbers of people from towns into the country has led to certain financial problems For instance should the evacuating or receiving authority pay for the treatment of evacuated tuberculous patients? There is a danger that a gigantic burden may be placed on the rural ratepayer So far no ruling on this point has been made

3 The surgical treatment of pulmonary tuberculosis must go on At the moment it is at a standstill for the special hospitals where these operations are normally performed have been deprived both of thoracic surgeons and of special instruments, while the outlying hospitals to which surgeons and instruments have been sent are not yet in a position to receive patients

4 There is a shortage of beds for cases of non-pulmonary tuberculosis It is important for these patients, most of whom are children, that treatment should be started promptly if deformity of limb and abscess formation with secondary infection are to be avoided

5 The memorandum offers suggestions regarding the routine examination of militiamen and the investigation of suspected cases of pulmonary tuberculosis in members of the fighting forces If proper *attention is given to these matters the Ministry of* Pensions will avoid many of the mistakes in assessing claims that were made in the last war and the country will be saved a considerable sum of money

To this Mr Elliot replied that he is having the greatest difficulty in persuading people that hospital services are available now just as before the outbreak of war Although some patients were discharged from sanatoria and other institutions to provide accommodation for casualties, about two thirds of the 28,000 beds provided for the treatment of tuberculosis in England and Wales remained available throughout the early weeks of the war for their peace time purpose, though naturally this proportion varied in different parts of the country If through some misunderstanding actively infectious cases were discharged they should be sought out and brought back for treatment An instruction issued on Oct 4, he said, specially emphasised the importance of the tuberculosis services Steps have been taken to remove any misunderstanding which might have led to the refusal of residential treatment to tuberculous patients in need of it, and also to enable a substantial number of smaller tuberculosis institutions originally included in the casualty scheme to return wholly to their normal functions This has made available some 5000 more beds In addition, as more and more of the hutted annexes to hospitals are completed more and more beds at present allotted to casualties will be released Other services are also returning to normal In London, for example, the dispensary services, after an initial lull, and difficulties owing to the temporary transfer of personnel, are resuming almost pre war activity In some reception areas these services have indeed been expanded Finally, the Minister suggested that a small liaison committee should be appointed which could report to him how the steps so far taken are working in practice

---

" If you find your friend's eyes getting accustomed to the black-out quicker than yours are try a bottle of cod liver oil, or halibut liver oil, and if that fails go and see your doctor "—Prof H Hartridge in "The World Goes By" on the wireless on Oct 25

" I would make at least one exception to the testimonial in favour of prepared foods—the small segments of cheese issued wrapped up in tinfoil Compared with ordinary cheese they give a very poor return They may be handy but they are not good value "—From a personal letter to the Editor

" The government of *England* will never rise to so exalted a pitch of glory as that of *Rome*, nor will its end be so fatal The *English* are not fired with the splendid folly of conquests, but would only prevent their neighbours from conquering They are not only jealous of their own liberty, but even of that of other nations The *English* were exasperated against *Lewis* the Fourteenth, for no other reason but because he was ambitious and declared war against him merely out of levity not from any interested motives "—VOLTAIRE in Letters concerning the English Nation 1733

Dr. Robert Fello Library

LETTERS TO THE EDITOR

A PLAN FOR BRITISH HOSPITALS

SIR,—Your first leading article on October 28 sponsors a scheme the main effect of which would be the destruction of our voluntary hospitals and the imposition of a whole-time system upon the leaders of our profession Were your commissioner (or should I say commissar?) better equipped with technical knowledge he would be aware that the safest treatment of a primigravida threatened with eclampsia is prophylactic abortion.

At the outbreak of war the policy of Parliament was to take steps against the possible consequences of aerial bombardment The evacuation of large masses of the population, the almost complete closure of our hospitals, and the relegation of the majority of our medical experts to a life of inactivity were perhaps necessary measures, but it is now possible to survey some of the consequences and the picture of the neglected sick of London, of the tuberculous patients condemned to contaminate their families, and of the teachers of medicine deprived of many of their most useful functions, is one to compel sober thought rather than complacent planning for the perpetuation of mistakes

Without expressly *stating it your commissioner* implies that analogies can be drawn between our system and that prevalent in the great continental cities. As far as Western Europe is concerned nothing could be further from the truth, for in all the great countries near to us the professors of medicine and surgery and many of their assistants engage in private practice although their hospitals are state institutions They are compelled, wisely I believe, to devote a much greater proportion of their time to their hospital duties than is the case with the staffs of our voluntary hospitals, but I have never heard them complain of this nor of the nominal remuneration they receive for it, their fame is often international and in many cases brings them large and well-earned incomes. I am sure that these men would unanimously oppose any attempt to make them work away from the great cities, or to convert them into whole-time servants of the State

This insistence on the whole-time principle is surely the crux of the problem, its combination of a heavy salary-list with inadequate reward is the factor which maintains our municipal hospitals at a level inferior to that of many continental cities, and (pace your commissioner) the restrictions imposed on holders of chairs of medicine and surgery in London have constantly prevented many of the most capable men from applying for such posts There is a type of man who is content with a tranquil life and a measure of security; there is another who asks only for the possibility of pursuing his clinical or laboratory research without thought of anything else—to these the scheme you support may hold attractions. But there is a third type whose individuality, restless energy and imaginative vision bring not only technical knowledge but inspiration to patients and to students. To such a man whole-time work in an area remote from contact with the main body of humanity is so unattractive that he would not accept it, and the disappearance of his kind would be an immeasurable loss to medicine and surgery.

If decentralisation has anything to recommend it (your commissioner's vision of an era of perpetual war may surely be dismissed as absurd) it is that the country and the outer suburbs are attractive to a minority of patients and the more academic workers. The majority of patients can be as easily cured in town, and when we accept the fact that it is in the great cities that the charitable layman can see and help to control the institutions he is inspired to endow, when we know enough of the human spirit to realise that it is of importance for the sick to be near their families and their friends, and when we realise what it means to patients to be able to seek assistance from famous hospitals enjoying the honorary services of eminent men, we know that the disappearance of our voluntary hospitals would be a national calamity.

The state hospitals on the continent are in many respects superior to our municipal hospitals, in some respects (notably in the longer hours given by their staffs) they can teach lessons to our voluntary hospitals But in one respect we lead—namely, in the service we can now offer to the class which is just richer than "the poor" There is no reference in your commissioner's report to the fact that such persons can obtain comfortable quarters for less than five guineas weekly, with a cost for all medical and surgical services of less than fifty guineas, in the private wings of many of our voluntary hospitals today With what motive is the exact contrary suggested?

It is untrue to say that consulting practice in London is doomed or dying; the struggle is hard and it is indeed rendered harder by our failure to permit the public clearly to distinguish between the true consultant and the charlatan, the sooner this is remedied the better, and an immediate step in this direction would be the creation of a title equivalent to that of *médecin des hôpitaux* and the permission of some private practice to professors But even the present situation is far from justifying pessimism

If this war has any meaning it is a revolt of *nations of freemen against the stupid domination of totalitarian states If victory is not to be barren it must be shaped to encourage the individual rather than to produce general enslavement.* There is an inhumanity and lack of vision in the plan you sponsor which mark it as being a scheme for making the world safe for bureaucracy and not one for the welfare of the sick.

I am, Sir, yours faithfully,

Harley street, W 1, Oct. 31. T. IZOD BENNETT

HARDSHIP IN THE E.M.S.

SIR,—When you speak in your first leading article of the emergency hospital scheme as "simply a stage in rapid evolution," I begin to fear that THE LANCET may be going over to the view that universal state medicine is inevitable Those who hold that view appear to be using their present big opportunity to promote it. If I were ever inclined to share it my experience of the E M S would have cured me.

Those who joined the wholetime E M S on patriotic grounds, and with verbal assurances that subject to prior claims of the service they could use their spare time for private patients, have been treated as "temporary civil servants" whose whole time had been bought at its market value. No consideration has been shown for the interests of their private patients, and there has been no recognition of their inability to reduce, at such short notice, their civil commitments to the level of their salaries It is true part-time service has been offered on the basis of one-third pay for two-thirds time—an obviously inequitable basis, so that an individual accepting it would let down his colleagues.

I have at the moment two cases in this hospital upon which I have operated. Both are able and anxious to pay me fees, and one of them is actually insured for surgeon's fee up to 100 guineas. Both are paying the hospital for private rooms. My commandant informs me that I am not entitled to take a fee from either of them. I have this week received a surtax demand for next Jan. 1 which is larger than my gross official salary for a year. My accountant tells me I have no claim to a reduction of this assessment.

I am, Sir, yours faithfully,

Oct. 30. A WHOLE-TIME SURGEON.

SIR,—Your special commissioner's "*Plan for British Hospitals*" is certainly the best scheme which I have seen. There is one criticism, however, on which I and my colleagues at one emergency hospital are unanimous. We do not think that part-time service is unsatisfactory, for two reasons: (*a*) the staffs of teaching hospitals are already on a part-time basis, although they are not paid for their hospital work. I have never heard it suggested that their hospital work is neglected. If it were, the remedy would be easy. At some voluntary hospitals, the honorary staff are appointed yearly; if our work were neglected we need not be reappointed. (*b*) The I.M.S. is, I think, generally considered to have a higher standard than the other services and in this service private practice is allowed in most posts—an arrangement which seems to attract a better class of doctor. It is improbable that whole-time hospital staffs will be very highly paid and I think there is a danger that too many good men will prefer general practice. I never heard, when I was in India, that the public work of the I.M.S. was neglected.

At all costs the growth of bureaucracy in the emergency hospital scheme must be prevented. We have been required to sign a declaration, before receiving pay for October, that we have not engaged in private practice. Almost everybody has seen an odd case or two, chiefly uncompleted pre-war cases. As this work has been done when off duty it would not have harmed the service even if there had been any public work to do. It is, I believe, a principle of English law that one cannot be asked to incriminate oneself, and for this reason some of us (whether or not we have in fact seen any patients) are refusing to sign. I suppose we shall not get our pay until the point has been fought out. It almost looks as though the Ministry of Health were pursuing a policy of repression for the fun of the thing.

I am, Sir, yours faithfully,

Oct. 30. A WHOLE-TIME PHYSICIAN.

THE CONTROL OF TETANUS

SIR,—The leading article in your issue of Oct. 21 is in present circumstances to be welcomed. You rightly state that active immunisation against tetanus was introduced in the British Army over a year ago. A considerable proportion of the Regular Army have availed themselves of this method of protection. The use of formol toxoid has been enormously extended owing to the present expansion of the Army, but active immunisation still remains, as do all other forms of inoculation, on a voluntary basis.

The policy of the British Army regarding the subsequent administration of tetanus antitoxin in the event of a wound suffered by persons who have been actively immunised differs from the French practice. We advocate the immediate administration of 3000 units of A.T.S., which is to be regarded as an additional safeguard against infection. In this connexion it may be pointed out that there is an optimum time for the administration of antitoxin—i.e., as soon after the infliction of the wound as is possible. Under the conditions of active service, when a casualty may lie out for many hours before medical assistance is possible, the administration of antitoxin may be unavoidably delayed. In these circumstances the value of previous active immunisation against infection is obvious. Further, it may not always be possible to obtain information as to previous active immunisation, although the fact that such inoculations have been given should be entered in the documents carried by all soldiers.

In order to obtain evidence which will enable the value of these different preventive measures against tetanus to be assessed, a case sheet has been designed for reporting such infections as arise. This necessarily deals with other details such as surgical intervention and treatment by chemotherapeutic agents.

I am, Sir, yours faithfully,

H. MARRIAN PERRY,
Director of Pathology.

Millbank, S.W., Oct. 24.

THE CONSCRIPTED PSYCHOPATH

SIR,—Those of us who had to deal with the so-called shell-shock patients in the last war had hoped that something would be done next time to prevent a repetition of the psychiatric illnesses which were lumped together under that unfortunate name. The need for prevention does not require to be stressed. The intense misery of the patients, the infectious nature of the disease so that it became a serious war problem, and the unending burden to the community should be sufficient reasons for inquiring if there are any means of prevention available.

From many quarters conclusive evidence has been obtained that in a large number of men a history of psychiatric illness was forthcoming before enlistment. If these patients had been excluded from the army there would almost certainly have been fewer psychiatric casualties. It is generally believed that medical boards are instructed to inquire into the mental history of the recruit, but some of us who are interested in mental illness are beginning to feel that the meshes of the net are too wide.

I have seen recently two persons who would not have been called up if attention had been paid to their histories. In one of these there was a prolonged history of repeated failure. He had to be taken from one school to another, until when he was 15 his doctor wrote to his father that he had come to the conclusion that the boy could not stand the strain of public school life, and that all attempts to make him do so should be given up. Thereafter his education was conducted by tutors and he attempted to study for a professional career. After he had passed some examinations his health again broke down, and for about a year before being called up for the militia he was occupied in trying to get it restored. The chief symptoms in each illness have been insomnia, attacks of terror always worse away from home, severe indigestion, and failure of concentration. Though this history, and a certificate from a leading physician that the lad was totally unsuited for military service, were communicated to the board, nevertheless the boy was passed fit for military service. The other patient joined the territorials a year ago and broke down with acute nervous symptoms about ten days after the outbreak of war. He too has had minor nervous illnesses throughout his life. One accustomed to the study of psychiatric histories would certainly have suggested further investigation before he was accepted

Even two swallows do not make a summer, and I have to admit that these are my only two specimens of the bird. But in conversation with my colleagues I have found that they also have been finding examples. If those of your readers who have knowledge of similar cases could send details to me at St. John's House, Smith Square, S W.1, it might be possible to find out whether this is a serious problem or not. If these psychopaths are being generally enlisted, then we are doing our best to provide many occupants for psychiatric beds, not only because of the numbers actually enlisted, but also because of the highly *infectious* nature of hysteria I am not suggesting a remedy for this state of affairs until I know something of the magnitude of the problem, but publicity may induce those responsible to realise that it is not unimportant.

I am, Sir, yours faithfully,

Smith Square, S W.1, Oct 30. T. A Ross

ELECTROTHERAPEUTICS IN MILITARY HOSPITALS

SIR,—Dr. Justina Wilson's letter is most timely It is true that very little is being done in the way of preparing the military hospitals for the treatment of patients by electrotherapeutic methods, either in apparatus or expert medical personnel. This of course means that a large number of the early cases are going to miss the benefit of a valuable means of relieving pain and clearing sepsis, of keeping up muscle tone where nerve-supply has been damaged, to say nothing of the after-treatment of fractures

The case of the emergency hospital service is even worse, for that organisation has not only taken no steps to provide this form of treatment, but has taken away from the general public at large the normal services which existed before Most of the leading London hospitals had their physiotherapy departments treating many thousands of patients annually On the outbreak of hostilities these were closed and no alternative places of treatment were offered to the large number of patients who were still on courses of treatment.

Surely if physiotherapy is needed in peace-time (and this is shown by all the leading hospitals having departments), how much more is it necessary in war-time, and it is to be hoped that departments will be organised before the rush of patients is too overwhelming

I am, Sir, yours faithfully,

Wimpole Street, W 1, Oct 30 ROBERT LEAVER.

RESPIRATION IN UTERO

SIR,—I was delighted to see the prominence given in your issue of October 14 (p. 838) to the work of Sir Joseph Barcroft on respiration in utero Though no physiologist, I attended his lecture which touched on this subject at the recent B M A. meeting in Aberdeen, when unfortunately there was no time to inquire further into a point which seemed to me of the utmost importance in obstetric practice. Sir Joseph's experiments seemed to prove conclusively that, for the sheep anyhow, the strongest antenatal and neonatal stimulus to respiration is not oxygen lack but cutaneous stimulation If this is so with human beings also, it should warn us against too facile comparisons between blue asphyxia and asphyxia of adult life, or between white asphyxia and shock.

As a general practitioner I have done my best to keep up with the latest precept and practice in the treatment of these conditions, but I must confess that I have been disappointed with the results of my efforts to apply them In fact, for over a year I have gone back *shamefacedly* but unrepentantly to the old-fashioned slapping and blowing on the abdomen—with most satisfactory results. My experience is limited and, I know, proves nothing, but it was most interesting and unexpected to hear the latest results of investigation apparently confirm the treatment of our grandfathers to which I had reverted. Sir Joseph expressed the hope that there might not be any obstetricians present at his lecture As I heard it I very much wished that there had been, but it would certainly be of interest to know what they now think in the light of the evidence there adduced.

I am, Sir, yours faithfully,

Winsford, Cheshire, Oct 24 W. N. LEAK.

REGIONAL ILEITIS

SIR,—In his paper on this subject (*Lancet*, Oct. 7, p 773) Professor Hadfield proves that this disease is granulomatous, and he goes some way towards showing that it may be tuberculous He refuses to go the whole way (favouring rather a relationship with Boeck's sarcoidosis) (1) because he was unable to find tubercle bacilli in any of the sections showing giant-cell systems either in the bowel wall itself, or in the regional lymph-glands, and (2) because in no case was there any evidence of caseation, the granulomatous lesions apparently regressing without showing necrotic changes.

It has been shown by José Valls of Buenos Aires, and later, independently, by myself that lymph-glands draining joints affected by tuberculous disease are themselves involved in most cases May I comment on Professor Hadfield's two caveats in the light of what is found in tuberculous joints?

(1) If the concentration of tubercle bacilli in an organ is low it is very difficult, sometimes even impossible, to demonstrate them in sections After a number of failures I gave up trying and trusted to guineapig inoculation.

(2) If printed photographs are worth anything, the lesions shown in Professor Hadfield's figs 2, 3, & 4 are identical with those in my paper (*Brit. med J.* 1939, 1, 105, figs. 1, 2, & 3) And there is an even more significant feature in common in only two of the glands from my series of 22 cases (some seen since the publication of the paper) were there any changes suggestive of caseation, in spite of the fact that many of the glands were almost completely replaced by tuberculous giant-cell systems *These glands never proceed to overt lymphadenitis—they invariably heal without showing more than a transient general hyperæmia* of the gland substance and the characteristic histological changes. Here then is a form of tuberculous disease that invariably regresses sooner or later, and rarely exhibits caseous changes, it closely resembles what Professor Hadfield has found in the glands from his cases of regional ileitis

When we come to examine material from joints there is not the same striking similarity, though there is some Since the treatment of tuberculous joints is mainly conservative, opportunities for examining material are rare However, I have just re-examined the sections from 30 cases and find that caseation was absent in 13 · in 11 of the 13 cases there were widespread hyperplastic changes not unlike those found by Professor Hadfield in the submucosa of the ileum It came as a surprise to me to find that caseation was not invariable, even in cases of considerable standing

Perhaps this is all a fairy story, it may be foolish to compare a joint and the glands draining it with a segment of bowel and its corresponding glands But I think that the points against tuberculosis in the pathological picture of regional ileitis need not yet be taken too seriously So far as absence of caseation is concerned, I feel sure that Professor Hadfield will not be put off what seems to be an uncommonly good scent by a little unconventionality on the part of so versatile a disease

I am, Sir, yours faithfully,

H J SEDDON

Royal National Orthopædic Hospital
Stanmore, Middlesex Oct 27

CHILDREN AT THE TAVISTOCK CLINIC

SIR,—Under the heading Child Guidance Council in your issue of Oct 28 a statement, which is perhaps capable of misinterpretation, was made with regard to the children's department of the Tavistock Clinic. We should be grateful if you would allow us to point out that the practice of the Tavistock Clinic, in both the adult and children's departments, does not now differ from pre war days It is, we believe, therapeutically sound for everyone to pay what they can for treatment, and hence we ask outpatients to pay, when possible, a minimum fee of 3*s* for a treatment interview Under war conditions this policy is unchanged The risk of confusion arises from the fact that during war-time a group of psychotherapists are separately carrying out private work in the same building at ordinary consulting fees

I am, Sir, yours faithfully,

A T M WILSON

Acting Medical Director Tavistock Clinic

Westfield College Kidderpore Avenue
London N W 3 Oct 30

TREATMENT OF VENEREAL DISEASES IN THE FIELD

SIR,—In the LANCET of Oct 28 Colonel Burke has made certain suggestions on the treatment of venereal diseases in the field It is his opinion that the evacuation of cases to base hospitals is not necessary under present standards of treatment The treatment of gonorrhœa at some hospital nearer the fighting line may be both desirable and feasible, but the long period of treatment with M & B 693 and the high total dosage recommended will cause some surprise to many who have used this compound

Colonel Burke recommends a period of treatment *of from* 14 to 21 days with a total dosage of 35–40 grammes Following our experience with sulphanilamide, we employed this prolonged and high total dosage with good results in our first trials with M & B 693, but, as we reported in your columns (Nov 19, 1938), a dosage of this order exposed the patient to a considerable risk of intolerance and toxic effects and was furthermore unnecessary For a considerable time we have used a total dosage of 21 grammes (1 gramme 8-hourly) and are now observing a series treated with a total of 15 grammes in 5 days The lower dosage minimises intolerance and considerably reduces the cost of a somewhat expensive treatment On this dosage, together with daily irrigation treatment, practically all cases cease discharging within 48 hours and attain apparent cure About 90 per cent of the cases complete intensive and prolonged testing without relapse

In view of the fact that several workers in this field have reported excellent results from a more intensive but still briefer treatment with M & B 693, *it may be found suitable by the army authorities* to adopt treatment of less than 7 days In any event, the advocacy of Colonel Burke of treatment with this compound for 14 to 21 days is in our opinion a retrograde step, for it is now widely known that those cases which respond to M & B 693 will do so within the first few days, and cases which fail to respond within a week will rarely respond later, however much of the compound is administered

Experience in the civilian population of the subjective symptoms due to the effects of sulphapyridine is such that a vivid imagination is not necessary to visualise the results which might arise if a man is returned to active service while undergoing treatment

We are, Sir, yours faithfully,

V. E LLOYD,
DAVID ERSKINE.

V D Department, Guy's Hospital S 1 Oct. 30

BLOOD GROUPS EXPLAINED?

SIR,—*With reference to your special article under* this heading, may I point out a serious error in the table comparing the Moss and Jansky classifications? These should differ only in the transposition of the 1 and 4 groups, the 2 and 3 groups not being transposed

I am, Sir, yours faithfully,

Haywards Heath Oct 25 J W SHACKLE.

*** We thank Dr Shackle for correcting us and trust that our error has not already led many of our readers astray —ED L

SIR,—Will you allow a mere medical student to comment on the article under this heading (LANCET, Oct 21)? It may accidentally give the impression that the genetic basis of blood groups has only recently been cleared up by Mr Scheinfeld It was, of course, actually brought to light by Bernstein in 1924 What Mr Scheinfeld has done is to give a popular exposition of the facts

I am, Sir, yours faithfully,

Aberdeen, Oct 28 GORDON P WALLACE.

ROYAL MEDICAL BENEVOLENT FUND

SIR,—I have received the following communication from the hon secretary of the Rutland Panel Committee which I am confident will have the sympathetic approval of your readers

At its meeting today the Rutland Panel Committee decided to abandon its annual dinner usually held in November It was felt that the money usually spent on this function should be devoted to medical charities, and in view of the many claims on the Royal Medical Benevolent Fund and its probable drop in income from high taxation the committee has asked me to send you a cheque for fifteen guineas, the approximate sum we usually spent on our dinner

As hon treasurer of the fund I would like to state how greatly the committee appreciates not only the generous action but also the spirit which underlies the gift May I suggest that this example might well be followed by other committees or clubs of every [illegible] when an occasion arises

I am, Sir, yours faithfully,

[illegible] Oct [illegible] LEWIS G GLOVER

THE B.E C.C. AND RESEARCH

SIR,—The attention of this campaign has been directed to a note which appeared on p. 967 of your last issue From the statement made there it would appear that the Grand Council of the British Empire Cancer Campaign has decided not to appeal for funds during the war and, if the statement remains unqualified, the public might reasonably be led to the conclusion that the campaign has discontinued research This is not the case The grand council has decided not to appeal for funds during the war as that might clash with war charities. Nevertheless, cancer research will be carried out with monies in hand and the steady income received from legacies A letter was sent a few days ago to all the research centres which have been helped by the campaign in the past, asking them to advise wherever they felt that important research could be carried on.

I am, Sir, yours faithfully,

J. P LOCKHART-MUMMERY,

Hon Secretary and Chairman of the Executive Committee,
British Empire Cancer Campaign

149, Harley Street, W 1, Oct 31.

*** We hope the B E.C C will take steps to make its wise decision widely known —ED. L.

CHEST SURGERY

SIR,—A misunderstanding has crept into "A Poitrinaire's" essay in your issue of Oct 21 Referring to the advance that has been made in the past ten years in the practice of chest surgery, he says that these advances have been confined to a few centres, and continues, "there is not, I suppose, in the south-west of Scotland, with a population of two million-odd, a surgeon who has done a couple of thoracoplasties." This statement is far from correct, if it refers to Glasgow and its environs The late Mr James Taylor performed his first thoracoplasty in 1922 at Robroyston Hospital, under the corporation of Glasgow, and published an account of his subsequent experiences in 1934 in the *Glasgow Medical Journal*. In 1935 a chest surgery unit was established at this hospital, and the surrounding areas were invited to make use of it. Since then, 105 thoracoplastic operations have been performed.

I am, Sir, yours faithfully,

A. S. M MACGREGOR,

Oct 28 Medical Officer of Health, Glasgow.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 14, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1448; diphtheria, 941; enteric fever, 42; pneumonia (primary or influenzal), 519; puerperal pyrexia, 179; cerebrospinal fever, 23; poliomyelitis, 31; encephalitis lethargica, 7; dysentery, 33; ophthalmia neonatorum, 88. No case of cholera, plague or typhus fever was notified during the week.

Deaths.—In 126 great towns, including London, there was no death from smallpox or scarlet fever, 3 (0) from enteric fever, 2 (0) from measles, 2 (0) from whooping-cough, 20 (0) from diphtheria, 29 (6) from diarrhœa and enteritis under two years, and 20 (2) from influenza. The figures in parentheses are those for London itself.

Croydon, Southend-on-Sea and Blackpool each reported a death from typhoid Fatal cases of diphtheria were scattered over 16 great towns, Birkenhead, Gateshead South Shields and Plymouth each reporting 2 Birmingham had 5 deaths from diarrhœa, St Helens, 3

Medical News

University of Oxford

On account of great pressure of clinical work, Prof. C. R Girdlestone has resigned from the chair of orthopædic surgery and from the position of honorary clinical director of the Wingfield-Morris Orthopædic Hospital He is not resigning from his appointments of honorary surgeon to the Wingfield-Morris Hospital or of honorary orthopædic surgeon to the Radcliffe Infirmary While Prof. Girdlestone's services are retained, it will be possible to appoint a new whole-time professor, thus greatly strengthening the Oxford orthopædic unit

University of Cambridge

It has been decided to shorten the present course for the diploma in medical radiology and electrology from nine to six months and to hold examinations for part I on Dec. 19 and on April 10, and for part II on April 9 and July 9. There will be *no* examinations for part I in February and July of next year, nor for part II next October.

Royal College of Physicians of London

At a meeting of the college held on Oct 26, with Sir Robert Hutchison, the president, in the chair, Dr H. L Tidy and Sir Adolphe Abrahams were re-elected members of the committee of management; Sir Comyns Berkeley a representative on the Central Midwives Board; and Sir William Willcox a member of the Poisons Board

Licences to practise were conferred upon 297 candidates (258 men and 39 women) who have passed the final examination of the Conjoint Board and have complied with the by-laws of the college The following are the names and medical schools of the successful candidates —

Francis Abadir, St. George's, J J L Ablett, King's Coll; A. J. Abraham, Middlesex, G H Adams, Birm, P. S Adler, Camb & Lond; C D Alergant, Lpool; L L Alexander, St. Bart's; O. P. Allcock, St Mary's, R H. Anthony, St Bart's; F. R. Aston, King's Coll.; F A. S Austen, Middlesex; R C Baird, Charing Cross, H M Balfour, Oxfd & Lond; D A Barley, King's Coll; Rotha H Barnfield, Brist, T L Barwell, St Mary's, G. A Beck, St Bart's, A L. T Beddoe, Brist; Eileen M. Benison, King's Coll.; Geoffrey Beven, King's Coll; Arnold Bloom, Guy's, D W Boatman, St Bart's; D C Bodenham, Brist, Norah H Bore, Roy Free, C. F Bose, St Bart's, A R Bradley, Guy's, J. B. Bramwell, Camb & Middlesex, O B Brears, Guy's; M O. Brigstocke, Westminster, C A Brockbank, St Bart.'s, B N Brooke, Camb & St Bart's; H P Brown, Guy's; P P. Brown, Camb. & Middlesex, C. E Brownridge, Lond, M R. Bull, Lpool, W W. Burnett, Manc.; Phyllis Burvill-Holmes, Univ. Coll; Alice M. F. Butterworth, Roy Free, R F. Butterworth, St Bart's, J G Byrne, Oxfd & Lond., E M Calvey, Lpool, P. S G Campbell, St. Mary's, B. L Camus, Camb & St. Thos, R U. Carr, St Thos, R A M. Case, Birm; J. E Cawthorne, St Bart's, C A Cheatle, St Mary's, A A Clay, Univ Coll, L. G. Clayton, Oxfd; W. T K Cody, St Bart's, P. C Collinson, St. Bart's, Beatrice Colvin Roy. Free, Ruth M Colyer, Univ Coll, R S Cox, Univ Coll, Mary Crago, Brist, Robert Crawford, Camb & Middlesex; G. D Cribb, Univ Coll, J D Cronin, St Bart's, T H Cullen, Middlesex; Kesavan Damodaran, Andhra, H A Davidson, Lond, E R Davies, Guy's; F. W. T Davies, Cardiff, J N P Davies, Brist; W. O Davies, St Mary's, R L G. Dawson, Univ Coll; Ina J Dennis, Manc, F A Denz, Univ Coll, P J De Vescovi, Camb & Univ Coll, R A B Dickson, Birm, J W. Doupe, Birm; J R Dow, Univ Coll, Margaret S Drinnan, Sheff, M B Dworkin, Brist, Harry Dyson, Lpool, J E G Earle, Camb. & Middlesex; A K Eastwood, Camb & Univ. Coll, D A J Ebrill, St George's, H D Eddy, Oxfd & Lond; P K. D Edmunds, Cardiff, Evelyn M Eldrid, Roy Free, E L Ellis, Camb & Leeds, H V. W Elwell, Westminster; J R Elwell, Univ Coll, T D V England, Cardiff; A. E J Etheridge, Guy's, M. O Evans, Middlesex, I S Eve, Camb & Guy's, Enid J Fair, Roy. Free, B E Finch, Charing Cross, Daniel Feldman, St George's, F. J Fish Lond.; G R Fisk, St Bart's, Joan M Foss, Brist; A J. Freese, Lond, Lilias M P Gairdner, Roy Free, Gwladys Garfield, Cardiff; I B Gartside, Camb & Leeds; M R Gaster, Camb. & St. Thos, P. G H Gell, Univ. Coll, Edward Gibbon, Westminster, F J Gillingham, St Bart's, C V. Gledhill, Univ Coll, Jonathan Gluckman, St Bart's, N H. H Golledge, St Bart's, L C L Gonet, St George's; D J H Goodhew, Lond; J H Gould, St Bart.'s; G H. Grant, Oxfd & Lond, M. J Greenberg, Camb & St Bart's; B. G Gretton-Watson, Camb & St Bart's, G C Griffiths, Lpool, R G Griffiths, Lond.; J. A G Gullford, Cardiff; Costa Halamandres, Guy's, John Halstead, Leeds, J M Hamer, Camb. & Manc, J K Hampshire Leeds, A G Hardy, Oxfd & Middlesex; Freda M O. Harries, Cardiff, T H. Harrison, Lond; J R Hart, St. Bart.'s, R H R Hartley, St Thos; S F. Hasan, North-east Lond A F. G. C Haslam, St Mary's, P. S Hawkins, St Thos, Hayden, Camb & St Mary's S T Hayes St Bart's F G Herzog Univ Coll S L Hetherington Camb & Lond, W S Higgs Lond, S W Hinds Guy's, Ernst Hirschowitz Westminster, H E Hobbs Lond, Elizabeth M Hollands Manc, Portia G Holman, Camb & Roy Free, Jean M Holtzmann Roy Free, W F Hooton Camb & Middlesex A M Horsnell Lond, C R Houghton Birm, Harry Houghton, Leeds J C Houston, Guy's, D R S Howell, St Bart's J S Howitt St Bart's, Aneurin Hughes Middlesex, F B Hughes, Brist, H O Hughes, Middlesex J G Hughes, Middlesex, Illingworth Illingworth Law, Univ Coll E V Irwin Middlesex, R H Isaac St Bart's, J A James Univ Coll, J W M K Jayewardene King's Coll J R F F Jenkins Middlesex, H B Jones St Bart's Megan E Jones, Brist, O H Jones, Charing Cross & W Lond, P H Jones Westminster, F F Joules Middlesex Joyce A Keeping King's Coll G W Kennedy King's Coll, R D Kennedy Camb & Univ Coll W G Kenton Birm A G Leakey, Univ Coll Colette D G Le Doux R C S I, Arthur Levin, Camb & St Bart's, C B Lewis, Lond, N S Lockyer St Bart's P B Longden Lond, S O Lovell, Middlesex James Lynch Guy's, R L P Lytle St Thos R W J Maclure Camb & Lond, J S McConnachie Aberd Hilary Macfarlane W Lond A C Mackay Camb & St Thos G K Marshall Camb & St Bart's I G Mathewson Camb & Guy's, J I M Melville Camb & Lond J M Mennell Camb & St Thos, Puzhankara A Menon Madras W H H Merivale St Thos Edith S M Merry Univ Coll, B U Meyer Univ Coll, F W Miles Univ Coll I H Miller Middlesex C J Milligan Univ Coll Esmond Millington Queen Mary's East End, Mary R More, Brist Margaret F Morgans Univ Coll, Alfred Morgenstein St Bart's Margaretta D Morrell Roy Free, O D Morris St Bart's, Alexander Murray Birm & Dubl, R A Murray Univ Coll E J A Needham Guy's Ernst Neumark, Univ Coll John Newsome Middlesex J W Nicholas Univ Coll C G Nicholson St Bart's R S Nicholson, Univ Coll Doreen Nightingale Univ Coll D A Osborn Guy's W I O Page St Bart's E D I Palmer Middlesex P J E B Palmer St Bart's W R K M Parry Cardiff, A L Patterson Camb & St Mary's J W Paulley Middlesex, S D Perchard Univ Coll Edith O V Perry, Camb & Leeds Lorna C Petersen Camb & Leeds I J Phillipp Camb & Middlesex Sundram Pillai Rangoon P R Pillay, Andhra & W Lond A S S Playfair St Bart's, M R Pollock Camb & Univ Coll R C Ponder Guy's S H M Price Westminster A H Pritchard Cardiff F J F Pugh Lpool, J D Randall Univ Coll T H Redfern Manc, J J Reeks St Thos J C A Renshaw Manc T A H Richards, Cardiff & Swansea Gen Hosp A G Riddell Univ Coll, Edward Ridehalgh, Manc F W R Rilstone, Guy's, A H Roberts Lpool G A Robinson St Mary's, Louis Rosen Univ Coll H A Rowley Guy's M S Rowley Manc R S Rowntree Middlesex R J Russell Univ Coll, J C Ryle Oxfd & St Bart's Erich Schlesinger Middlesex G B Schofield St Bart's, I H Scoones Lond, L G Scott Guy's W M Scott Camb & St Mary's C J P Seccombe St Mary's P C Seed Camb & Manc, M P Shapiro Lond, A I A Shaw Camb & Guy's Margaret M Shrubsall Roy Free K W C Sinclair Loutit, Camb & St Bart's, L I Smith, Guy's A G Spencer Univ Coll P N Stanbury, Camb & St Bart's G B Stanford, Univ Coll R N Stansfield Manc Norman Stephen Lpool, A V Stevens Middlesex A A Stonehill Brist, G B Stratton St Thos J D Stride Middlesex P H Stringer Middlesex, W G Sugden St Bart's J H Swan Middlesex L A Sylvester, St Mary's Maggie Tan W Lond Peter Tettmar Lond A C Thackray Camb & Middlesex J M Thom, Middlesex, C C Thomas, Camb & Middlesex; G L I Thomas Cardiff, G A Thompson Manc, Jean F Thompson Camb & Leeds J F Thompson St Bart's; Phyllis M Timothy Cardiff, T I Tuley, Leeds, P M Turquet Camb & Lond P A Tyser St Thos C H G Upjohn Camb & Middlesex H D S Vellacott Camb & Lond, R C Vesaina Bombay Margaret H Vickery Cardiff, Edith M Wagstaff Brist B I Welton W Lond, G C O Wharton Charing Cross Merle Whitehead W Lond, W R D Wiggins, Guy's D R C Willcox, Guy's J M Willcox, Camb & Middlesex, Emily K Williams Cardiff H W O Williams Lond, J L Williams Charing Cross J N Williams Guy's, C W Wilson Guy's R C Witt St Bart's & Northampton Gen Hosp Simon Witt Univ Coll, Eric Wolfendale Manc P H Woodcock Univ Coll Alice Yates Univ Coll J A Yates Guy's

Royal College of Surgeons of England

The general anatomical and pathological collections of the college will be open for inspection from Monday, Nov 6 from 10 A M to dusk on week days and from 10 A M to 1 P M on Saturdays

University of London

At a recent examination for the academic postgraduate diploma in clinical pathology Alice Benjamin J S B Bray, F J Dubash, and Sankara Sivasankara Pillai were successful

Sedgwick Medal

On Oct 17 Dr Thomas Parran Surgeon General of the United States Public Health Service received the Sedgwick medal for distinguished service in public health, the presentation being made by Dr Milton J Rosenau, a former recipient of this distinction

Society of Apothecaries of London

This society will not hold its examination for the mastery of midwifery in November, but an examination will be held in May if circumstances permit Further information may be had from the registrar of the society Water Lane, Queen Victoria Street, E C 4

At recent examinations the following were successful

Surgery—B Berman J J Brenner W R Dyke R G Feast M C Fulton F F Gleadow M C Mair S T Nakib, G L L Reynolds E G F Skinner D Specter and J A Sutton

Medicine—W R Dyke M C Fulton, G Hannigan S Krishnan J Marks T Owen T I Palmer W L Roden J C Scott H F Sparling E A Spouse W N Vellacott and C F Winterstein

Forensic Medicine—W R Dyke M C Fulton G Hannigan J Marks T Owen, W L Roden J C Scott H F Sparling, E A Spouse W N Vellacott and C F Winterstein

Midwifery—T A H Adkins M F Davies W R Dyke A A M Easton G F H Enderby M C Fulton R H Gaman P Haden A Hannun W D Jenkins H A Kreiser A P Motley, and S J I Ras

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery and midwifery —

J J Brenner Oxfd and St Bart's M F Davies Guy's, W R Dyke Guy's, M C Fulton Georgia U S A W D *Jenkins Lond Hosp*, S *Krishnan, Sheff*, M C Mair, Glasg and Charing Cross, A P Motley, Roy Colls Edin S T Nakib St Mungo's Coll Glasg and W Lond T Owen Lpool T I Palmer, St Bart's G L L Reynolds Oxfd and Guy's W L Roden Guy's H F Sparling Guy's, D Specter, Welsh Nat Sch Med W N Vellacott Guy's and C F Winterstein Camb and Guy's

Royal College of Obstetricians and Gynaecologists

At a meeting of the council held on Oct 28 with Prof W Fletcher Shaw, the president, in the chair Walter William Chipman emeritus professor of obstetrics and gynaecology in McGill University, was admitted in absentia to the honorary fellowship, and Morris Datnow (Liverpool) was admitted in absentia to the fellowship Grace Johnston Cuthbert (Sydney) was elected to the membership and the following were admitted to the membership:

Bruce Hunter Anderson Alexander Wilson Anderson George Willis Blomfield David Robinson Cairns William David Alistair Callam Douglas George Wilson Clyne Molly Constance Devenish Meares Donald Stewart Craig Thomas Neville Hart William Hawksworth William Morton Lemmon George Gordon Lennon Frank Haighton Lord Ruvin Lyons Thomas Alastair MacFarland David Matthew Watson Maxwell, Shivaprasanna Misra Denis Valentine Morris Russell Ian Ritchie Thomas Frederick Rose Everell Mary Shippam Richard de Soldenhoff Geoffrey Benton Thomas Sydney Lance Townsend, John Dickie Watt and Ella Windeyer

Mr T P Hedley assumed the office of hon treasurer in place of Mr Eardley Holland

The examinations for the membership and diploma will continue to be held and the activities of the college are being maintained

The following have been awarded the diploma of the college

J J Carter, Penuel M E Chitty Solomon Berder J A Dhurandhar Phillis Bingh K W Evans W W Gifford Gordon Gillies William Heng, J R F James, J F Jameson, A N Khadilkar O J D Lawson Stephen Madden J M McKiddie K S F MacRae Mabel G Miller, Ann C Robertson Isaac Rose K C Shah I N Simons, L F J Thomas R M Williams J W F Webster, and I A C Wood

Additional Group Officers

The following additions to the list of Group Officers given in THE LANCET (Oct 21 p 920) are announced London (Sector II) Dr A E Clark Kennedy New medical group officers Portsmouth Mr B Wagstaff Southampton Mr E I Wangman; Wolverhampton: Mr W H Harper Newport Mr A Radley, and Swansea: Mr O C Howells

Fellowship of Medicine

A course in neurology especially intended for M R C P candidates will be given at the West End Hospital for Nervous Diseases daily at 2.30 P M from Nov 13 to 24 Postgraduates desiring attendance are asked to make known their requirements to the secretary of the fellowship at 1 Wimpole Street London W 1

Chelsea Clinical Society

It has been decided by the council to suspend all activities of this society and forgo subscriptions for the duration of the war.

Royal Medico-Psychological Association

A special general meeting of this association will be held on Wednesday, Nov. 8, at 11, Chandos Street, London, W.1, at 3 P.M.

Treatment of Sick Children

On Oct 27 the Minister of Health received a deputation from the British Pædiatric Association, introduced by Prof. Charles McNeil, of Edinburgh They suggested (*a*) the appointment by the Government of a pædiatrician to act as consultant or adviser to the Minister, just as consultants had been appointed for special work like facial surgery under the Emergency Medical Scheme; (*b*) the appointment of specialists in children's illnesses who would, in cooperation with general practitioners and public health authorities, be responsible for the children in the receiving areas, (*c*) the allocation of special blocks of beds, and the concentration on those beds of specially trained children's doctors and nurses, for sick children in the receiving areas

In reply the Minister said that the appointment of a consultant in children's illnesses was not analogous to the appointment of consultants on such things as facial surgery in the Emergency Medical Service, since the latter would deal with casualties caused by air-raids, whereas the former would be dealing with ordinary illnesses He would gladly consider their suggestions and particularly their offer to set up panels of specialists in the different emergency regions, but he doubted whether evacuation could properly be made the occasion for the institution of a new service, not available in peace time He pointed out that the evacuated children represented only a small proportion of the total child population of the country, and if a specialist children's service were to be made available as part of the public health services, it would need to cover children generally and not merely those who had been evacuated.

Indian Medical Service

Colonel G G. Jolly, M B., has been appointed honorary physician to the King in succession to Brevet Colonel R. N. Chopra, M D., who has retired Colonel John Taylor, M D, has been appointed honorary surgeon to the King in succession to Colonel Sir Alexander Russell, M D, who has retired

In the *Schweizerische Medizinische Wochenschrift* for Oct 21 (p 984) it is stated that the blood-group of every German soldier is recorded on his identity disc. This practice was introduced in Sweden some time ago

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By Medicus, M.P.

The Personal Injuries (Emergencies Provision) Act came up for discussion on a motion by Mrs Adamson (Labour M P for Dartford) to annul the scheme made under the Act which was presented to the House on September 15 The Act itself, passed on September 3 as part of the spate of emergency legislation which had to be rushed through, contained no precise details The scheme of September 15 contained them and the only means of criticising it for practical purposes was to propose a motion to annul it But criticisms or no criticisms, it is to be noted that by this Act provision for injuries to civilians caused by war risks is made in human history for the first time.

The debate was notable for the attention it drew to the woman's side of the war on the Home Front and to the anomalous position of the mother and housewife, who because she does not receive a wage for her services is defined as "not gainfully employed." Another feature of the debate was the demonstration that the scale of allowances for children was based on the small family principle, allowances only being available for four children, but not more Whether this is because the mind of the draughtsmen of the act, who no doubt belonged to the higher-paid ranks of the middle-class, considered—as was suggested in the debate—*that large families should be discouraged*, or whether it was due to Treasury economy, it is difficult to say. The same feature cropped up in the scales of allowances for children of serving soldiers, so that it is clear the large family is unpopular in Whitehall But the old-fashioned Whitehall expert must be having a hard time just now. The human factor insists on obtruding itself, as in this personal-injuries debate, and, as Mr Amery said, "Those who have concocted these scales must, I fancy, belong either to households that have taken great care . . . *not to have more than two children, or to those who are so wealthy that a few additional* children . . do not make much difference . . . or else they genuinely believe that it is a crime to have more than three children." As the Minister of Pensions said in the debate, he was himself one of six children in a home to which his first earnings of 2*s* 6*d*. a week—were "a very welcome addition" And the Minister added that in his younger days his mother used to say "that any household which had a pound a week regular was fortunate."

* * *

Debates in the House nowadays are very intimate whenever, as in this personal-injuries debate, the subject matter lends itself to intimacy—so much so *that sometimes the interruptions and back-chat are more like the usual idea of a schoolroom* when the master is not present then an austere legislature It is really doubtful whether the House of Commons ever was very austere. According to Speakers before the present holder of the office whose memory went back to much earlier days, the present House of Commons is very much better behaved than it has ever been In Victorian days the space "behind the Speaker's chair" and alongside of it out of range of the Speaker's eye was sometimes filled by those politicians whose idea of interjection was a cock-crow or even a *moo So the present intimate atmosphere of the House and its response* to the human appeal is no new thing. Perhaps this has something to do with the real spirit of democracy which is more and more evident.

* * *

On another day there was quite a different kind of debate, that on the situation in India and the demand of the Congress Party, the Muslims and others for a clarification of war aims. The Congress Party want to be sure that if they are to fight for freedom *and democracy they will obtain that freedom for India and be allowed to apply that democracy to India.*

Mr. Wedgwood Benn, who opened the debate and who has an experience of very many years of Parliament, and was at one time Labour secretary of state for India, pleaded for a clear definition of the position of India to be set by the Government. Mr. Benn asked also for the representatives of Indian opinion to be given a greater share of authority at the present time on the central government of *India* Provincial government in India has been a great success—this was agreed on all sides The next step is one to dominion status for India, and Sir Samuel Hoare, with as long experience of India as Mr Wedgwood Benn, made it plain that this was what the Government had in view It is to be hoped that a method of full cooperation between Great Britain and India can be obtained The Congress have made their opposition to the Nazi doctrines and everything they imply very crystal clear And it was clear the House wanted the Government to give India the opportunity of helping in this fight for freedom on equal terms

QUESTION TIME

Emergency Medical Service

Mr SPENS asked the Minister of Health to what extent he had found it possible to consult the medical profession in determining the terms and conditions of employment of medical practitioners in the Emergency Medical Service —Mr ELLIOT replied Consultations with representatives of the medical profession have taken place at frequent intervals The following are among the more important In 1937 the Central Emergency Committee of the British Medical Association was asked to compile a register of practitioners with a view to ascertaining their availability and special qualifications for service in an emergency This register comprises about 98 per cent of the profession The utmost use is made of this committee (now called the Central Medical War Committee) working through local committees which are representative of the profession as a whole In July, 1939 invitations to enrol for whole time service were sent to practitioners who were nominated by the Group Officers Arrangements were subsequently made under which these full time officers could go on indefinite leave without pay, subject to recall when occasion arose Later the option to transfer from full time to part time service was given under conditions recommended by a committee constituted from amongst leaders of the profession and presided over by Sir Bernard Docker The constitution of this committee and the conditions it recommended were given in reply to a question on Oct 12 On Oct 18, a committee consisting of the presidents of the Royal Colleges of Physicians, of Surgeons and of Obstetricians and Gynæcologists, and representatives of the Group Officers, of the Central Medical War Committee, and of the London County Council, was set up to consider whether present circumstances necessitate further measures of reorganisation This committee has not yet reported Its members are as follows

Representing the Royal College of Physicians Sir Robert Hutchison (president) Dr H L Tidy

Representing the Royal College of Surgeons Mr Hugh Lett, Sir Alfred Webb-Johnson

Representing the Royal College of Obstetricians and Gynæcologists: Prof W Fletcher Shaw, Dr J P Hedley

Representing group officers London Sir Charles Wilson Sir Girling Ball Dr H F A Boldero Provinces Prof A H Burgess, Mr K W Monsarrat, Prof L G Parsons

Representing Central Medical War Committee Mr H S Souttar (chairman), Dr H Guy Dain, Dr A F Clark Kennedy and Prof R M F Picken

Representing London County Council Dr W Allen Daley

Attending by invitation Sir Maurice Cassidy, Mr R M Vick

Reservation of Medical Students

Sir ERNEST GRAHAM LITTLE asked the Minister of Labour and National Service whether, in view of the excessive wastage in the medical profession during the last war he would arrange with the Secretary of State for War for the reservation from military service until after qualification of all medical students at present registered irrespective of the stage of their studies in order to ensure an adequate supply of skilled medical practitioners for civilian and military needs, both during and after the war —Mr ERNEST BROWN replied I have consulted the Minister of Health, and am satisfied that at the present time the reservation of medical students provided in the schedule of reserved occupations—viz., "Medical student who has passed first professional examination and completed two terms of study in anatomy and physiology"—is adequate to meet the needs of the situation.

Other Students

In reply to a further question Mr BROWN said that under the National Service (Armed Forces) Act individual students could apply for postponement of their liability to be called up for service on grounds of exceptional hardship Students possessing certain technical and scientific qualifications would also have the opportunity of applying to the technical committees associated with the university joint recruiting boards which could in suitable cases recommend that they should complete their courses of study

Measles in Reception Areas

Mr ISAACS asked whether any steps had been taken in the reception areas to deal with the anticipated measles epidemic which, over some period past, had occurred regularly every two years —Mr ELLIOTT replied I have drawn the attention of local authorities to the need for additional hospital accommodation in reception areas for cases of infectious diseases both notifiable and non notifiable I am also issuing regulations providing for the compulsory notification of measles and instructing medical officers of health to make such inquiries and take such steps as are necessary or desirable for investigating the source of infection, for preventing the spread of infection and for removing conditions favourable to infection.

Camps for Defective Children

Mr SORENSEN asked the Parliamentary Secretary to the Board of Education, whether he was aware of complaints concerning cold, lack of light, inadequate air raid precautions, and the general unsuitability of conditions affecting defective children evacuated from Leyton and elsewhere to Suffolk coast camps, and whether, in view both of the particular need and of the position of these children, he would consider plans for their education under more suitable circumstances elsewhere —Mr KENNETH LINDSAY replied The camps in question were inspected early in the summer by representatives of the evacuation authority for London, and appeared to be the most suitable accommodation which could be found for handicapped children who in their own interest and in that of householders, could not reasonably be placed in billets After expert inspection a number of these camps have not been found suitable for continued use by such children in winter conditions, and five have been vacated It will probably be necessary to vacate two further camps as soon as suitable accommodation can be made available elsewhere

Supply of Glucose

Replying to Mr ROBERT MORGAN, Mr W S MORRISON Chancellor of the Duchy of Lancaster said that firms manufacturing or using glucose had not been told that no further raw material would be issued for the manufacture of glucose Special arrangements had in fact been made to supply maize to glucose factories within the past few days. The quantity of maize arriving during recent weeks had been below normal and purchases had been made in South Africa and elsewhere substantial shipments being on the way As supplies became available purchases would be continued from all possible sources It was intended while the shortage lasted to allocate maize supplies to the most urgent needs and he hoped to be able to allocate to the glucose industry a substantial proportion of its requirements

Retention of Slum Dwellings

Replying to Mr DAVID ADAMS Miss HORSBRUGH said that it was the intention of the Minister of Health that slum houses which were empty should be left standing

Such houses, although unfit for human habitation might, in the event of a considerable destruction of housing accommodation owing to enemy action, be brought temporarily into use The Minister had already advised local authorities in response to inquiries to do everything possible to ensure that these houses were protected and, where necessary, disinfested

Health Insurance Transfers

Mr GEORGE GRIFFITHS asked if it was intended under circular A.S 322 that the provision that no insured person should transfer from one society to another came into force at once or would it allow transfers up to the end of the year.—Miss HORSBRUGH replied A circular will be issued shortly to all approved societies indicating that no objection will be raised to the completion of transfers as at Jan 1, 1940, in cases where the transferor society had, before Sept 3, 1939, given formal consent to the transfer, and the insured person and both societies concerned desire that the transfer should take effect

Deafness from Engine Noise

Sir FRANCIS FREMANTLE asked the Secretary of State for Air, what action he had taken to reduce deafness from engine noise in the aviators and mechanics of his department, and to ascertain and train the deafened for further service; and whether he would obtain the cooperation of the National Institute for the Deaf in the matter—Sir KINGSLEY WOOD replied: Devices to lessen the effect of aircraft noise are provided for all flying personnel and research into the question is continuing Nerve deafness due to engine noise affects the hearing to a minor degree only and, as cases are detected at an early stage, does not ordinarily result in incapacitation All flying personnel are examined periodically to assess the condition of their special sense organs, including the ears.

. . . . IN ENGLAND—NOW

(FROM OUR PERIPATETIC CORRESPONDENTS)

THE department of the medical officer of health has migrated from its spacious Victorian offices in the business centre of the city to a seedy and uncomfortable-looking mansion in the grounds of a large municipal institution farther out; and there he and his colleagues try to cope with the almost impossible tasks imposed upon them. They are busy with A R.P., first-aid posts, ambulances, hospitals, problems of evacuation, beds for air-raid and service casualties, and many other new difficulties, in addition to what survives of their peace-time responsibilities. Not for a long time, I imagine, have they been thrown into such close contact with the main body of the local profession, and particularly with both medical and lay members of the voluntary hospitals The M.O H. and his staff, together with the group hospital officer who is housed elsewhere, stand as a buffer between the doctors, the local politicians in charge of municipal hospitals, and the often silent or undecided Ministry of Health; and undoubtedly they receive many a kick which ought rather to impinge on the pants of the Minister or his proxies at Whitehall. They deserve a proper meed of sympathy, in a situation that will remain difficult until the community has made up its mind how far vested interests are to be allowed to stand in the way of an adequate hospital service in time of war. The war has created a task altogether too big to be compassed by local politicians and their permanent officials, or by isolated groups of the profession itself Through the Ministry of Health the community has in effect asked the profession to run its war-time hospital service, and the spirit of the initial response to that request has been unselfish and determined Where it becomes clear that there is unfairness, the profession asks that the community, in the same spirit, shall put it right The Ministry of Health, for example, has closed down certain hospitals in dangerous areas, and asked the consultant staffs to work elsewhere; it would be unfair to allow such action to force those transferred staffs into a system of hospital working which they think not so efficient as their own, or to ask them to build up new and extended hospital units without ensuring that they will not be hindered by the narrow interests of local authorities

* * *

Whether they like it or not, medical administrators are being forced by events back into the general body of doctors faced with an urgent practical task. Henceforward their work will be done in the intense light of informed criticism by their peers, and the inefficient will find it painful. The technique adopted to satisfy national or local politicians and so to safeguard their own sphere of free action will not do for their fellow doctors who having access to the facts can assess them medically. But the man who is a real leader, and who earns the goodwill and cooperation of his colleagues, will be able to rely on priceless support from them against all comers.

Fiat justitia, ruat cœlum—in other words, the assizes go on, war or no war I have just spent a day there, to find justice being dispensed with all its usual solidity and smoothness I always like to see the entrance of the judges' procession at the start of the day; it has colour and great dignity, and the assize trumpeter (usually there are two, but one has gone to the wars) is one of our most delightful institutions. Nor is the solemnity always unrelieved, for on the day set apart for the hearing of matrimonial causes the procession usually files in to the trumpeting of some such air as "Home, Sweet Home." Whatever may be the faults of the legal profession *vis-à-vis* the interests and convenience of the general community, it can give points to the medical profession in the maintenance of its traditions, and of all those outward and visible signs which express the consciousness of its inward and professional values. The mere presence of his ermined Lordship on the bench, and of the gowned and bewigged seniors in the K.C.'s desks, sets an unmistakable tone to the general working of the Law.

It ought to be made compulsory for final-year medical students to spend some days at each assize in both civil and criminal courts, not only to become familiar with the medical aspect of various types of case, but also as part of their general education They would realise on how sure and solid a foundation must a medical opinion be based if it is to stand up to cross-examination by a first-rate barrister; it might save them later from lightly giving opinions—perhaps subconsciously to please a patient or a solicitor—which cannot be supported out of the general body of medical knowledge. This does not mean that bluff or even special pleading on the part of a medical witness may not at times succeed—often because counsel on the other side has not been adequately instructed by his own medical witness. But given an interesting case, with sound honest medical experts on opposite sides, a day in the courts can be as entertaining and exciting as a play, and far more educative than an afternoon in the operating theatre watching the removal of a cerebral tumour.

The genial policemen guarding the door of the civil court were just the same as ever, save that they had tin helmets and service respirators on their backs A group of women witnesses had just emerged from court, and were somewhat noisily comparing notes in the corridor. "Now you ladies," said one of the solemn-faced policemen, "if you cackle like that just outside this door, and the Judge hears you, he'll have you back and give you each three years"

* * *

In our little town in Fife the war has forced us to conduct an interesting dietetic experiment We set up a communal kitchen for the evacuees; our treasurer was allowed to collect the 8s 6d. a week for each child from the post office. He then handed over 3s. per child per week to each householder and kept the 5s 6d. for the kitchen fund. The children get three meals a day at the kitchen and much to our surprise we find it can be done quite satisfactorily on this small sum. The mothers with children who feed at the kitchen have to pay for their own and their children's meals at the rate of 7s. per week for adults, 5s. 3d. for children from 4 to 14 years, 4s. 0d. for children from 1 to 4 years, and 1s. 9d. for children of less than 1 year.

For breakfast they had porridge and milk, tea, cocoa, and bread and butter. On Sundays they have eggs and fried bread. For midday dinners there are two meatless days with lentil or potato soup with brown bread and a suet pudding. On other days there are vegetable soup, and mince, stew, stoved potatoes, or shepherd's pie in turn. When there is no soup they get a pudding—bread pudding, fresh fruit and custard, pastry, or sponge. On Sundays they have cold mince mould or pies, and fruit salad (made from dried fruit) and jelly and custard.

Tea consists of tea and milk, bread and butter or jam, or buns, biscuits, and on meatless days an apple or a piece of cheese extra.

The church hall was requisitioned for the kitchen and we borrowed boilers, a stove and a lot of cooking equipment from the red cross camping store. The rest of equipment and other expenses came out of the A.R.P. fund. All the helpers are voluntary except the cook who is paid £2 per week from the A.R.P. fund. We allow for each child about ¾ pint of milk, 2–3 oz. meat, and 8 oz. bread a day.

* * *

Nearly all my medical societies and special medical clubs have shut up shop, as far as meetings are concerned. We have had a successful series of weekly lectures on war wounds and injuries at the Liverpool Medical Institution under the chairmanship of the group hospital officer, but that is all. It looks as though we shall actually have to trek up to the Royal Society of Medicine, if we hanker after a medical meeting. Practice being what it is—or rather what it isn't—I can foresee such jaunts becoming as rare and exciting as a cup final. My house physician (I hope that by then he will be employed by the E.M.S. at £350 a year) will no doubt run up by the morning train and stay for a show at night. In default of a cheap day excursion, I have in mind myself to look out a stout pair of nailed boots some days before the meeting and tramp it, arranging to pick up one or two evacuated and ruined Harley Street friends en route. The road from the North through Aylesbury has its points, for by now the Editor of *The Lancet* ought to have settled down to country pursuits, and the slipping of a stray duck inside his coat lining on his way home from work ought not to be beyond him, for hospitality's sake. Moreover to a man who can produce *The Lancet* from Aylesbury, the *mise en scène* of green peas and other proper accompaniments is mere child's play. It should be a very good meeting—at Aylesbury, and if perchance we did not make London in time for the formal meeting, I could always find out later from my houseman whether anything of importance had emerged therefrom.

"A medical radiologist now serving abroad reported that he had been allotted the cloakroom of a casino for his X ray department. No water, gas, or electric current was at first available although in other respects the situation was quite inviting, especially the slot for gratuities which still remained on the counter though the drawer underneath it was empty. This radiologist had to call in workmen to carry out the necessary fitting. Sometimes they would arrive with the materials but without the tools, sometimes with the tools but without the materials, and at other times without either. In the end the radiologist had to turn to and carry out the work himself.—Major D. B. McGrigor, president of the British Institute of Radiology, speaking at the October meeting.

Vacancies

Birmingham and Midland Eye Hosp.—H.S., at rate of £130.
Birmingham and Midland Hosp. for Women.—Two H.S.'s, each at rate of £100.
Boston General Hosp.—Res. M.O., at rate of £150.
Braintree, Black Notley Sanatorium.—Second asst. M.O., £350. Also jun. asst. M.O., £250, house officer at rate of £1[illegible]0.
Cambridge, Addenbrooke's Hosp.—Cas. O. and supernumerary.
Cardiff, King Edward VII Welsh National Memorial Assn.—Asst. res. M.O. for Glan Ely Hosp., £200.
Castleford Urban District Council.—M.O.H., £800.
Dudley Guest Hosp.—H.S., £150.
Halifax Royal Infirmary.—Res. surg. O., £230.
Hull, Anlaby Road Institution.—Asst. M.O., £350.
Ilford, West Ham Hosp. for Nervous and Mental Disorders, Goodmayes.—Jun. M.O., £350.
Lincoln County.—Temporary asst. M.O., £800.
Manchester, Barnes Convalescent Hosp.—Res. H.P. and res. H.S., each at rate of £150.
Newport, Mon., Lydia Beynon Maternity Hosp.—Res. M.O. and asst. M.O. for maternity and child welfare, £[illegible].
Nottingham Hosp. for Women.—H.S., at rate of £150.
Oldham Royal Infirmary.—H.S. to eye and ear, nose and throat dept. and H.P., at rate of £175.
Plymouth, Prince of Wales's Hosp., Greenbank Road.—H.S., at rate of £120.
Queen's Hosp. for Children, Hackney Road, E.2.—H.P. and cas. O., each at rate of £100.
Royal Cancer Hosp., Fulham Road, S.W.3.—H.S., at rate of £100.
Royal Free Hosp., Gray's Inn Road, W.C.1.—Registrar in ear, nose, and throat dept., at rate of £100.
Stoke-on-Trent, London Road Hosp.—Sen. res. asst. M.O., £350.
West Sussex Administrative County.—County M.O., and school M.O., £1300.

Specialist Medical Referee vacancies under the Workmen's Compensation Act, 1925, to take ophthalmic cases arising in the county court districts of Birmingham (circuit No. 21), Bromsgrove, Bromyard, Kidderminster, Stourbridge, Tenbury, Worcester, Evesham, Great Malvern, Hay, Hereford, Ledbury, Leominster and Kington (circuit No. 22), Atherstone, Coventry, Bletchley and Leighton Buzzard, Northampton, Daventry, Rugby and Nuneaton (circuit No. 23), Aylesbury, High Wycombe, Banbury, Shipton on Stour, Buckingham, Chipping Norton, Oxford, Thame, Wallingford, Wantage, Witney, Henley on Thames, Windsor and Reading (circuit No. 36). Applications to the private secretary, Home Office, Whitehall, London, S.W.1, before Nov. 18. Also Medical Referee for the county-court districts of Bromley and Sevenoaks (circuit No. 50). Applications as above before Nov. 16.

The Chief Inspector of Factories announces vacancies for examining surgeons at Coleshill, Warwick, and at Islay, Argyll.

Births, Marriages and Deaths

BIRTHS

PEGG.—On Oct. 22, in Calcutta, the wife of A. D. Pegg, F.R.C.S.I.—a son.
PROSSER.—On Oct. 27, at Harrogate, the wife of Dr. I. J. Prosser—a son.
STARLING.—On Oct. 23, at Eccleshall, Stafford, the wife of Dr. Evelyn Starling—a daughter.

MARRIAGES

NEWTON—WHITEHEAD.—On Oct. 21, at Kingswood, Surrey, John Lambert Newton, M.R.C.S., of London, to Mollie Whitehead, of Lower Kingswood.
WILSON—BOX.—On Oct. 2[illegible], at Wincle, Cheshire, Alexander Hutton Wilson, M.D., of Buxton, to Clarice J. Box, of Castleford.

DEATHS

McLACHLAN.—On Oct. 23, in Capetown, Arthur Ronald McLachlan, F.R.C.S.
PECK.—On Oct. 2[illegible], at Bournemouth, Lieut.-Colonel Edward George Peck, D.S.O., M.R.C.S.
POYNDER.—On Oct. 2[illegible], at East Grinstead, Frederick Cecil Poynder, M.B. Oxfd, aged [illegible].
SAUNDERS.—On Oct. 2[illegible], at Kilburn, London, Allan [illegible] Saunders, M.R.C.S., anaesthetist to Paddington Green Children's Hospital.
VELLACOTT.—On Oct. 21, Philip Northcott Vellacott, O.B.E., M.D. Lond., F.R.C.S., of Crowborough, [illegible].
WALL.—On Sept. 2[illegible], at Shamva, Salisbury, S. Rhodesia, James Black Wall, M.R.C.S., L.R.C.P., aged [illegible].
WEBSTER.—On Oct. 26, at Margate, Percy Lawrance Webster, M.R.C.S., L.D.S., late surgeon to the Royal Sea Bathing Hospital, Margate.

Appointments

DORAN, F. S. A., M.B. Camb., resident registrar to the surgical outpatient department of the Manchester Royal Infirmary.
McKAY, G. K., F.R.C.S., hon. assistant surgeon to the orthopaedic department of the Jenny Lind Hosp. [illegible], Norwich.
ROBINSON, C. B., M.B. Dubl., assistant medical officer at the Belfast Mental Hospital.
Examining Surgeon under the Factories Act, 1937: Dr. G. D. CARTER ([illegible] district, [illegible]).

TETANUS FOLLOWING INTRAMUSCULAR INJECTIONS

A CASE of tetanus, presumably due to intramuscular injections of procaine with a dirty needle, is described by M. Loubejac and D. Samonati in the *Boletin de la Sociedad de Cirugia de Montevideo* (1939, No 1, p. 5). The patient, a woman of 35, had an intragluteal abscess in each buttock. She confessed that fifteen days previously she had given herself three injections of a ½ per cent. solution of procaine and had not boiled or otherwise sterilised the needle and syringe. Despite antitetanic treatment and evacuation of both abscesses she died. No tetanus bacilli or their spores were found in the pus, and none grew in anaerobic cultures. Loubejac and Samonati point out that tetanus due to therapeutic injection is rare, but that cases have been known to follow the injection of badly sterilised gelatin. In their patient, however, the contamination must have been caused by the needle, the procaine having been found free from organisms. In discussing the case Dr. D Prat threw some doubt on its ætiology He said it was uncommon for an abscess to be the portal of entry of tetanus; the alleged length of incubation (fifteen days) was usually associated with a mild form of the disease; and other possible sites of entry—e g., visceral—had not been excluded.

IN HONOUR OF CUSHING

WE have received from Schuman's of New York a catalogue entitled Seventy Noteworthy Medical Rarities (on the birthday-cake principle), published in honour of the late Harvey Cushing's seventieth birthday. We doubt whether any bookseller has ever previously issued a catalogue to commemorate such an event, and it is all the more apt because Cushing was a great bibliophile and was at work on a bibliography of Vesalius when death overtook him. There are four books by Vesalius in Schuman's catalogue, but the most interesting item is a collection of medical manuscripts probably written in Italy in the early part of the thirteenth century, including a copy of the Liber Aureus, formerly ascribed to Constantinus Africanus but now believed to be by his pupil Joannes Afflacius, the Practica Pantegni of Constantinus Africanus, being the second half of the Haly Abbas translated by him from the Arabic; and the poem De Urinis by Giles of Corbeil. Constantinus, born at Carthage, introduced Arabian science to Salerno, and Giles of Corbeil was chiefly responsible for conveying the Salternitan lore to Paris.

INFLUENZA VIRUS VACCINE

THE inoculation department of St. Mary's Hospital, London, now issue a prophylactic vaccine consisting of a formalinised suspension of several strains of the virus isolated from cases of human influenza. In order to protect against the bacteria responsible for complications, it is recommended that the virus vaccine should be used in conjunction with a mixed bacterial vaccine. The immunity following influenza virus vaccine takes about two weeks to reach its height and remains at a high level for three months. It is therefore advisable to commence inoculation in October or November and to give a second series three months later. Messrs. Parke, Davis and Co., from whom the virus may be obtained, advise a first course of one dose of influenza virus vaccine and two doses (0·5 c.cm. and 1 c cm.) of their anti-influenza vaccine (mixed). The second course should consist of a 1 c.cm. dose of virus vaccine and 1 c cm. of the anti-influenza vaccine (mixed)

FOLLOWING THE WAR —We have received from John Bartholomew, The Geographical Institute, Duncan Street, Edinburgh, 9, a war map of Germany, Poland and the adjacent countries For a modest 1s. 6*d*. it reminds us of the Munich partition, and such forgotten lands as Moravia, Slovakia, and the Carpatho-Ukraine. The partition of Poland is clearly marked and the western front is there ready for developments Unfortunately Finland is outside its scope. Even so, it is just the thing to keep our arm-chair strategists busy in the long blacked-out evenings

WE are informed that Sulfarsenol (sulpharsphenamine) is now being manufactured in England As heretofore supplies may be obtained from Modern Pharmacals Ltd., 12, Guilford Street, London, W C.1.

CORRIGENDUM —The publishers of "Operative Orthopedics" by Dr W. C. Campbell, reviewed in our issue of Oct. 28, are Messrs Henry Kimpton, and the price is 60*s*

Dr Bedford Fenwick, who died on Oct 14, was the eldest son of Dr Samuel Fenwick, physician to the London Hospital. After studying in London, Paris, Vienna, Leipzig and Berlin he became attached to the Hospital for Women, Soho, and eventually retired as senior consulting gynæcologist. The great motif of his life was the improvement in the social and legal status of hospital-trained nurses, and he was largely responsible for the passing of the Nurses Registration Act of 1920 Subsequently he formed a trust fund for providing and promoting the education of nurses This included the acquisition of premises for the British College of Nursing, the administration of which he patiently carried on in spite of years of ill health

. . . "Is not the statistician rather like Cassandra of Troy? He is compelled to tell the truth but his gods will allow nobody to believe him "—From a recent private letter to the Editor

Medical Diary

Week beginning November 6

BRITISH POSTGRADUATE MEDICAL SCHOOL

DAILY
10 A M–4 P M, Medical clinics, surgical clinics and operations; obstetrical and gynæcological clinics and operations
1.30–2 P M, Postmortem demonstration

MONDAY
4–6 P M, Lord Horder Ward clinic

WEDNESDAY
11 30 A M, Clinical-pathological conference (medical). 2 30 P M., Clinical-pathological conference (surgical)

THURSDAY
2–4 P M, Dr. Duncan White Radiological conference.

FRIDAY
2 P M, Clinical-pathological conference (gynæcological)

The Lancet 100 Years Ago

Nov. 2, 1839, p. 206

A quotation from the Morning Herald *of Sept* 30, 1839.

At an inquest held in the parish of Islington, on Saturday morning, Mr Wakley, M P, and Coroner, said that he had resolved, as soon as he was a little longer in office, *to make* it *a* general rule throughout the western *division* of Middlesex, to have post-mortem examinations *in all cases* of sudden death . . . The reporter hopes *that he is not* overstepping the bounds of his province when he states, from what he has heard and seen, *that there is a very* strong feeling among the majority *of* the public *against* Mr Wakley's predilection for *dissecting (many deem it* mangling without reasonable motive) the dead bodies of persons on whom he causes inquests to be holden His decision, already put in practice, of holding inquests *on* the bodies of females who have died in child-birth, or shortly afterwards, has excited such painful feelings, that it is to be feared that they will *find* vent *in a* way by no means pleasant to *the medical* Member of Parliament and Coroner.

ADDRESSES AND ORIGINAL ARTICLES

TONSILLECTOMY AND NEPHRITIS OF CHILDHOOD

By R. S. Illingworth M.D. Leeds, M.R.C.P., D.P.H., D.C.H.

RESIDENT MEDICAL ASSISTANT AND CLINICAL PATHOLOGIST AT THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET, LONDON

TONSILLECTOMY, according to some, is almost a panacea for the diseases of childhood, according to others it is a dangerous operation, doing good to a select few having no effect on others, and harming many Opinions about its value in nephritis are many and varied The present communication is an attempt to clarify the position of tonsillectomy in nephritis an attempt to decide whether or not tonsillectomy prevents, causes, or cures nephritis It is a study of 365 cases of nephritis seen at the Hospital for Sick Children, Great Ormond Street London, in the last eleven years, 301 of which were in the acute stage of the disease

THE LITERATURE

In a hundred papers on nephritis in childhood I found no reference to the incidence and nature of nephritis arising after tonsillectomy Only two referred to the operation as itself a cause of nephritis Fishberg (1934) mentioned one such case and Hill (1919) two, but neither gave details Much more has been written about tonsillectomy as a therapeutic measure

Bachr (1926) states that removal of the source of infection often causes a temporary but pronounced increase in hæmaturia, followed by a gradual but complete disappearance of red cells from the urine His results probably apply chiefly to adults

Alport (1932) emphasises the importance of removal of focal sepsis, especially at an early stage of the disease, and says that "definite cure may result"

Berglund and Medes (1935) give a table which certainly suggests that persistence of infection has some effect on the ultimate outcome They point out that hæmolytic streptococci often persist in the throats of children who have had tonsillectomy, and that such throats need careful treatment In other words it is not enough to remove the septic tonsils which have caused nephritis; the infection, which often persists in spite of the operation, must be eliminated

Wyllie and Moncrieff (1926) state that it is not uncommon for blood to disappear rapidly from the urine after tonsillectomy

Platt (1920, 1932) suggests that persistence of infection in the tonsils has an effect on the prognosis

Others who think the removal of tonsils important as a therapeutic measure are Greenwood (1927) Kollert, Clausen (1925) Volhard and Fahr (1914) and Layman (1918) On the other hand, Addis (1931) says that removal of septic foci seems to have no permanent effect on the disease, the operation may cause a temporary exacerbation but does not lead to a lasting decrease of abnormal constituents in the urine

Lyttle and Rosenberg (1929) said that vigorous treatment of foci of infection did not reduce acute exacerbations, but they did think that persistence of infection was a factor in causing chronicity of the nephritis Cockburn (1935) found a slightly lower percentage of cures in patients operated on (the operation including, if necessary, antrostomy) than among those not operated on

Ball and Evans (1932) say that it is characteristic of the disease that it pursues a course independent of the infection primarily responsible for its development Close (1930) considers that in nephritis the value of tonsillectomy is open to doubt

Guild (1931) found that half of those cases which were later shown to be healed, and half of those later found to have become chronic, had had their tonsils removed, and he doubts the value of the operation

Little has been written about the time at which the operation should be performed or the relation of the incidence of exacerbations to the duration of the disease before tonsillectomy Graubarth (1937) thinks that the tonsils may be removed during the early stage of acute nephritis Parsons (1926) and Cautley (1923) feel that it is wiser to allow the acute stage to subside before operating

Many of the papers are inadequate because the follow up was too short because criteria were not given to show what was meant by "cure" or because there were no controls to show the prognosis of cases not submitted to operation Addis (1925 1931) however, by the sediment count and Berglund and Medes (1935) among others followed many cases from the acute stage to that of chronic nephritis and compared the outcome in children with and without tonsillectomy

PRESENT INVESTIGATION

The present communication is concerned for statistical reasons with the 301 cases seen in this hospital in the acute stage of the disease but attention is at times drawn to a further 64 cases of nephritis which were not seen here in the acute attack The term "acute nephritis" includes the non œdematous forms but rigidly excludes those cases which superficially simulate acute nephritis and which are called by some "acute tubular nephritis," but which are really cases of the subacute stage of the disease It is shown in another paper (Illingworth and Payne) that acute focal nephritis is not a clinical entity, and that no advantage is to be gained by distinguishing cases with œdema from those without It is therefore possible to include here "acute focal nephritis" and "acute diffuse nephritis" under the one heading of "acute nephritis"

In the two groups of cases in which tonsillectomy was followed by nephritis or was performed as part of the treatment of nephritis, the operation was done at Great Ormond Street by dissection Not all the other patients were operated on in this hospital, but no case in which septic remnants were found on admission is included in the study Urinary examinations in the acute stage were usually made by Dr W W Payne biochemist to the hospital, and in all cases on re-examination they were made by him Albumin was estimated quantitatively with a 5 per cent solution of salicylsulphonic acid, and the centrifuged deposit was examined for [illegible] and casts Red cells averaging more than [illegible] per [illegible] field of the microscope in a non-[illegible] specimen were considered to be of [illegible] significance None of the patients [illegible] urinary tract or vaginal infection

All patients who had been [illegible] at the acute stage of the disease between [illegible] were requested to attend for [illegible] responded The details of [illegible] described elsewhere (Illingworth and Payne), but it may be repeated here that every effort was made to secure an accurate reading of the blood-pressure. A blood-pressure which was twice the standard deviation from the normal, as given by Faber and James (1921), was considered to be "doubtful," and a blood-pressure which was more than three times the standard deviation was considered to be abnormal. The re-examination included a blood-urea estimation and complete analyses of the urine on *two or more* consecutive weeks.

The re-examinations enabled us to classify the condition of the patients as follows:—

(1) *Latent or active*—Abnormal blood-pressure; and/or excess of red cells in the urine; and/or albumin more than 10 mg. per 100 c cm

(2) *Uncertain.*—Blood-pressure classed as "doubtful" with or without a trace of albumin (less than 10 mg per 100 c cm.).

(3) *Probably healed.*—Investigations negative or albumin less than 10 mg. per 100 c cm. in the absence of other findings.

As points for comparison between the various groups of cases the condition of the urine on discharge, the mortality, the occurrence of exacerbations, and the condition on re-examination are presented, but it was not considered to be of value, in view of the great variations in the severity of nephritis in childhood, to present other details, such as the degree of nitrogen retention, the duration of the stay in hospital, and the presence or absence of œdema

THE ACUTE STAGE

In 61[1] of the 301 cases seen in the acute stage tonsillectomy had been performed more than six months before the onset of nephritis This is probably an understatement, because in some cases there was no note in the inpatient records to indicate whether the tonsils had or had not been removed In at least 40 of these 61 cases the nephritis was attributed to an infection of the ear or throat. The following is an analysis of the cause of the nephritis in these cases:—

Pharyngitis	26
Otitis	6
Cervical adenitis	
Coryza	2
Cause unknown, and other causes	21
Total	61

In 15 other cases nephritis followed the tonsillectomy at such a short interval that it was reasonable to suppose that the operation was the cause of the nephritis The operation was considered to be the cause of 1 other case not seen in the acute attack but attending here in the latent stage of the disease A total of 16 cases, therefore, in which tonsillectomy was considered to have been the probable cause of the nephritis, is described below Table I gives the salient features of these cases The interval between the operation and the onset of renal symptoms is not to be regarded as necessarily the same as the interval between the causal infection and the onset of nephritis; for in 4 of these cases the operation led directly to an otitis media, which in turn was followed by nephritis, and in another the operation was followed by an acute antritis, and this in turn by an acute nephritis

The duration of the stay in hospital in these 16 cases is included to show that the condition was not very mild In all 8 cases in which accurate records of urinary findings were kept the urine was abnormal on discharge from hospital There was *definite* œdema in 4 cases, no œdema in 8, and merely puffiness of the eyes in the other 4 Nitrogen-retention is known to have occurred in 5 of the cases, but in most of the others an estimation of the blood-urea was either not performed at all or not made sufficiently early to be of value The blood-urea falls very rapidly in acute nephritis, and therefore urea estimations to be of any value must be made early in the disease (Illingworth and Payne) The subsequent history of these patients will be discussed below

TABLE I—CASES OF NEPHRITIS PROBABLY CAUSED BY TONSILLECTOMY

Case	Œdema	Interval between operation and onset of nephritis (days)	Postoperative otitis media	Duration of nephritis before discharge (days)	Albumin on discharge	Red cells on discharge	Blood urea (day of disease when estimated)
1	None	21	—	9	—	N r	—
2	,,	13	+	36	N. r.	N r	—
3	,,	12	+	55	N r.	N. r	192 on 10th day
4	,,	3	—	194	+	+	58 on 2nd day
5	,,	5	—	37	—	N r	33 on 3rd day
6	,,	30	—	69	+	+	89 on 25th day
7	,,	2	—	40	—	N r	—
8	,,	4	—	108	—	N r	33 on 3rd day
9	Puffiness of eyes	1	—	56	—	N r	—
10	,,	28	+	61	—	+	29 on 14th day
11	,,	15	—	51	+	+	34 on 10th day
12	,,	18	+	32	—	+	—
13	General	28	—	66	+	+	21 on 24th day
14	,,	uncertain *	—	—	N r	N. r	—
15	,,	28	—	41	+	+	92 on 7th day
16	,,	3	—	95	+	+	57 on 8th day

* Not seen in acute attack N r = No record

TABLE II—EXACERBATIONS AFTER TONSILLECTOMY

Duration of disease	Cases operated on	Resultant exacerbations
Less than a month	30	6
One to two months	60	*16*
Over two months	29	6
Total	119	28

As a therapeutic measure tonsillectomy was performed in 132 cases of nephritis, but in only 119 of these was it done in the first stage of the disease. In at least 94 of these cases there were signs of activity of the renal lesion at the time of the operation This is almost certainly an understatement, because in most of the other cases there was no satisfactory examination of the urine—which must include microscopy of centrifuged deposit—immediately before the operation Table II shows the incidence of postoperative exacerbations in relation to the duration of the disease before operation.

---

[1] This figure excludes patients who, after previous tonsillectomy, were found on admission to have tonsillar remnants.

It seems surprising that exacerbations occurred in no more than 28 cases, and they did not seem to bear any relationship to the duration of the disease

Some authorities have considered an exacerbation after tonsillectomy as characteristic of focal nephritis Scheidemandel (1913), for instance, said that such an exacerbation was a "striking therapeutic criterion of differential diagnostic value" in focal nephritis, and that it rarely occurred in the diffuse type The figures of this hospital, however, do not confirm that statement The tonsils were removed in the acute stage in 61 cases without œdema and therefore presumably of focal type, with a resultant exacerbation in 11, and an exacerbation followed operation in 10 of the 28 cases (of diffuse nephritis) with general œdema It seems, in fact, that an exacerbation is more likely in the presence of œdema than in its absence

The exacerbations in all but 3 cases were of very brief duration—lasting not more than two or three days In one the exacerbation appeared to last for four months, in another for three weeks, in another the exacerbation proved fatal In this last case, one exhibiting general œdema, the operation was performed on the seventy fifth day of the disease, a severe exacerbation occurred and the child died, no necropsy was done

In another case also, not mentioned in the above series because it was in the subacute stage when first seen, the resultant exacerbation proved fatal The child, aged 20 months, was admitted with a month's history of generalised œdema without other symptoms The urine showed massive albuminuria, with no red cells in the deposit and no casts, blood urea was normal—27 mg per 100 c cm The blood urea on the sixth day after admission was still 27, and on the thirteenth day 26 mg per 100 c cm There was a reduction of plasma proteins and an inversion of the albumin-globulin ratio Tonsillectomy was performed on the thirteenth day after admission A serious exacerbation resulted, diarrhœa and vomiting developed, and ten days after operation the blood-urea was 258 mg per 100 c cm Necropsy showed much œdema of the brain and a subacute glomerulonephritis (the "degenerative stage" of Addis)

The operation, therefore is not entirely without danger

Many writers say that albumin and blood rapidly disappear from the urine after tonsillectomy This is not the experience of the hospital Table III shows the condition of the urine on discharge in cases in which the operation was done as a therapeutic measure In 84 per cent of the cases in which the urine was adequately analysed it was abnormal on discharge, and the proportion showing abnormality of the urine on leaving hospital is almost the same (86 per cent) in cases in which no tonsillectomy was performed Those patients who had had tonsillectomy as a therapeutic measure and had abnormal urine on discharge stayed in hospital, on an average 36 days after the operation before being sent home, hence a *reasonable time had been given for the immediate benefits of the operation to manifest themselves*

Closer examination of the analyses of urine shows that those cases which cleared up shortly after the tonsillectomy were cases in which the urine was already rapidly clearing before the operation In not a single case of the entire series is it possible to say that the tonsillectomy had any immediate beneficial effect on the nephritis

Table III also shows that in 8 cases in which the operation was the *cause of the nephritis* the urine had not cleared up before discharge

TABLE III—IMMEDIATE AND REMOTE PROGNOSIS OF TONSILLECTOMISED CHILDREN WITH ACUTE NEPHRITIS COMPARED WITH THAT OF CONTROLS

	Cases	Condition of urine on discharge			Deaths in acute stage	Subsequent history		Condition on re examination 1–12 years after onset Cases = 86		
		Unknown	Abnormal	Normal		Death	Exacerbations	Latent or active	Doubtful	Apparently healed
Children in whom tonsillectomy was performed more than 6 months before onset of nephritis	61	28	28	5	0	2	0	15	3	3
Children in whom the operation probably caused nephritis	15	7	8	0	0	0	0	4	0	0
Children in whom *tonsillectomy* was performed as a therapeutic measure within 6 months of the onset of the disease	119	67	44	8	1	2	7	23	4	7
Control children in *whom tonsillectomy* was not performed	106	45	52	8	13*	0	4	20	4	3
Total	301	147	132	21	14	4	11	62	11	13

* Most of these children died in the first few days of the disease and there is therefore no suggestion that tonsillectomy might have prevented death

TONSILLECTOMY AND MORTALITY

None of the 14 patients who died in the acute stage had had tonsillectomy before the nephritis Tonsillectomy was only performed during the attack in the 1 case already mentioned and the resultant exacerbation proved fatal Of the patients seen in the acute stage 4 are known to have died since discharge In 2 of these the tonsils were removed before the onset of the disease, in 1 they were removed in the acute stage, and in 1 two and a half years after the onset (see table III)

TONSILLECTOMY AND SUBSEQUENT PROGRESS

Of the 301 patients 11 had exacerbations several months after the onset of the disease (table III) *In 7 of these tonsillectomy had been performed during* the acute stage This figure however, is fallacious, because on studying the relationship of tonsillectomy to subsequent exacerbations in all cases whether seen by us in the acute stage or not it is found that exacerbations occurred in 22 cases and in only 9 of these had the tonsils been removed Before presenting the result of re examination of our own cases, it may be added that 14 patients came up to this hospital in the subacute stage of the disease having had a *known previous acute attack of nephritis 8 of them* had had their tonsils removed Tonsillectomy therefore had not checked the nephritis

Finally 95[3] of the 301 patients with acute nephritis seen in the acute stage in the last eleven years attended for re examination one to twelve years after the onset Table III shows the results Signs of active nephritis were still present in 15 out of 21 who had had tonsillectomy more than six months before the nephritis In

---

[3] Not all of these are included in table III owing to the fact that in 9 cases tonsillectomy was performed less than six months after the onset of the disease

4 out of 4 in whom the operation probably caused the nephritis, in 23 out of 34 in whom the operation was done as a therapeutic measure within six months of the onset of the disease, and in 20 out of 27 with tonsils still present. These figures show that tonsillectomy as a therapeutic measure has had little effect on the eventual outcome It is true that the percentage of patients operated on during the course of the disease who were in the latent stage when re-examined was somewhat lower than that of the patients with intact tonsils, but the difference is of no statistical importance.

Table IV shows the condition on re-examination of those patients in whom the operation may have caused the nephritis None of the 4 cases had healed. In the fourth case in this table the blood-pressure, according to the standards we have used, was pathological.

TABLE IV—RESULTS OF RE-EXAMINATION OF CASES OF NEPHRITIS PROBABLY CAUSED BY TONSILLECTOMY

Age of onset (years)	Age when seen	Duration of nephritis before *re*-exam	Blood-pressure	Blood-urea (mg. per 100 c cm)	Urine	
					Albumin	Red cells
4 4/12	10	5 8/12	136/82	22	+	0
11 6/12	16	4 5/12	160/100	23	+	+
6 3/12	9 6/12	3 3/12	120/75	23	+	+
5 9/12	7 5/12	1 8/12	118/85	20	0	0

DISCUSSION

Tonsillectomy does not prevent nephritis. Of 301 patients with nephritis seen in the acute stage, 61 (20 2 per cent) had had the tonsils out some months or years before the onset of nephritis—and this almost certainly understates the facts Glover (1938) gave statistics to show the incidence of tonsillectomy in the children of London, and from his figures it was calculated that, taking into consideration the age-incidence of nephritis in our series, approximately 9 per cent of our patients attending for nephritis might be expected to have had a tonsillectomy before admission We found, however, that 20·2 per cent. of the cases had had the operation, and that the proportion was in actual fact probably higher still; this figure excludes those cases of nephritis caused by the operation It is reasonable to suggest, therefore, that tonsillectomy, so far from preventing nephritis, has more than doubled the chances of the development of the disease. It is a suggestion which requires confirmation from other sources

The nephritis was probably caused by tonsillectomy in 15 cases (5 per cent). It would be useful and interesting to perform daily analyses of the urine for a period of three or four weeks on a series of children submitted to tonsillectomy It is possible that many more cases of nephritis would be found to follow the operation

As a therapeutic measure tonsillectomy does not seem to be of value In not a single case can it be said that the removal of the tonsils had any immediate beneficial effect on the urinary condition; neither did it appear that there was any subsequent effect: 84 per cent of patients operated on before discharge and 86 per cent of those in whom the tonsils were left intact had abnormal urine when they left the hospital. Exacerbations, deaths from chronic nephritis, and progress into the latent or chronic stage of the disease are not prevented by tonsillectomy Cases in which the tonsils had been removed before the onset of nephritis had the same prognosis as those in which the tonsils were still intact on re-examination. Cases submitted to the operation fared little better.

It is possible that the experiment performed by E C. Dickson (cited by Addis 1931) may apply to the nephritis of man He gave rabbits and guineapigs a single dose of uranium. Many months afterwards a section of the kidney showed an active inflammatory reaction It is possible that a single dose of streptococcal toxin can start an inflammation which may heal or may continue, despite all efforts to prevent further infections by the removal of the septic focus which caused it

Tonsillectomy in acute nephritis has not been shown to be of any benefit to the patient Its value, if any, should have been seen in this very large series of cases. It seems probable that an operation which may increase the risk of nephritis, may cause nephritis, may kill in nephritis, and has not been shown to help those who survive it, should not be used as a therapeutic measure in the acute nephritis of childhood.

SUMMARY

(1) Of 301 patients admitted to the Hospital for Sick Children in the last eleven years for acute nephritis 20 2 per cent had had tonsillectomy some months or years previously. This figure does not include patients found on admission to have tonsil remnants It is calculated from the figures showing the incidence of tonsillectomy in London children that only 9 per cent of children admitted for the disease might be expected to have had the operation. It is suggested that the operation may, in fact, predispose to the occurrence of nephritis.

(2) In 15 (5 per cent.) of the cases admitted for acute nephritis in the last eleven years tonsillectomy is considered to have been the probable cause of the disease. The nephritis was not mild. All of the 4 cases seen later still showed evidence of active disease four to eleven years after the onset.

(3) Tonsillectomy was performed in 119 cases in the acute phase of the disease. No beneficial effect on the urinary condition was noted Of these patients 84 per cent were discharged with abnormal urine after an average stay in hospital of thirty-six days between the operation and discharge, and 86 per cent of patients not operated on were discharged with abnormal urine Tonsillectomy did not prevent exacerbations some months later or check the activity of the nephritis. Of 14 patients seen in the hospital in the subacute stage some years after the onset of nephritis 8 had had their tonsils removed during the acute stage

Re-examination of children one to twelve years after the onset suggested that those children who had had their tonsils removed had fared no better than those whose tonsils were still intact. 23 out of 34 of those in whom the operation was performed in the acute stage, 15 out of 21 of those in whom the operation was performed before the onset of nephritis, 20 out of 27 of those with tonsils intact on re-examination, and 4 out of 4 of those cases of nephritis caused by the operation still showed evidence of activity.

(4) The final conclusion is reached that (*a*) tonsillectomy does not prevent nephritis but may predispose to it; (*b*) tonsillectomy does not cure nephritis or prevent it from progressing to the chronic stage; and (*c*) tonsillectomy may cause nephritis.

My thanks are due to the entire honorary staff of the Hospital for Sick Children, for permission to publish details of their cases and for granting facilities for this investigation

References at foot of next page

DISSECTING ANEURYSM OF THE AORTA

By Terence East, D M Oxfd, F R C P

PHYSICIAN AND PHYSICIAN IN CHARGE OF THE CARDIOLOGICAL DEPARTMENT, KING'S COLLEGE HOSPITAL, LONDON

During recent years several articles have appeared in the United States on the clinical features and pathology of dissecting aneurysm In this country we have the excellent monograph by Prof T Shennan, published by the Medical Research Council in 1934

It seems worth while to record the following case, diagnosed during life, for most of the characteristic features were present, and survival was unusually long and to draw attention to an important and serious condition which should be fairly easily recognised clinically if it is kept in mind Probably it occurs more often than one might suppose

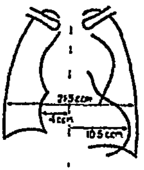
Using this case as a text, one may compare it with others in which the diagnosis has been made during life There are 7 reported up to 1932 (Shennan 1934) and since then I have found 20, chiefly in American literature

CASE RECORD

The patient, a stout rather florid woman, first came under observation when she was aged 43, for high blood pressure This she was known to have had for two years Her mother had died of a stroke at the age of 65, after a previous stroke at the age of 50 (An example of the prolonged course of this disease, even in its later phases, particularly in women) Her blood-pressure was 240/140, with some arterial thickening, there was a reduplicated mitral first sound, with a slight mitral systolic murmur and some enlargement of the left ventricle, and a trace of albuminuria

Exactly nine months later, when making a bed in the morning, she was suddenly seized with an appalling pain across the epigastrium and in the lumbar region She managed to get downstairs and then lost the use of her legs The pain spread all over the trunk and was intense She vomited twice and passed water involuntarily Later in the day the urine contained blood The pain continued and was controlled only partially by large doses of morphia In the evening she was still in pain, in the lumbar region chiefly The abdominal muscles were not rigid The blood-pressure was high The legs were powerless and flaccid, and the deep reflexes were abolished Sensation was dulled, the right leg and foot were colder than the left, without arterial pulse, and there was no pulsation in the right femoral artery The pain lasted ten days At the end of this time the blood-pressure was 281/144 The legs were weak, but the reflexes had returned The skin was rather cool, and no pulse could be felt in either femoral artery Leucocytes were 19,600 per c mm, of which 79 per cent were polymorphs After seven weeks she was able to walk, but the pulses in the legs were still absent

Investigations showed persistent albuminuria and a blood-urea of 60 mg per 100 c cm The Wassermann reaction was negative Radiography of the aorta showed widening and elongation throughout (see figure)



Orthodiagram

Four months later I heard that she had had two attacks of cardiac asthma, in the height of which the systolic pressure had risen to over 300 mm Hg Four years later I saw her again She said that a year previously she had walked as much as six miles and had been doing her house work Six months previously she had had severe pain low down in her back and had lost the use of her legs for a time Now she was getting about well and had no breathlessness Her feet readily became cold on walking, but she got no cramp The left ventricle was very large, and there was a gallop rhythm The electrocardiogram showed the usual gross left axis deviation and negative T wave in lead I The brachial arteries were thick, the blood-pressure over 300/150, the same in both arms The aortic second sound was very loud and could be clearly heard between the left scapula and the spine The reason for this is clear from the orthodiagram which shows the enlarged aorta (see figure) The pulsation of the aorta was extensive to the right, but very little pulsation could be seen in the posterior part of the arch and in the descending portion There was no tracheal tug or dysphagia Synchronous pulsation was present in the arteries of the feet, but it was weak relatively to the height of the blood pressure The left dorsalis pedis felt weaker than the right

The diagnosis was obstruction of the abdominal aorta due to dissecting aneurysm in a patient with hypertension It seems possible that she had a second minor attack when she had pain for the second time and temporarily lost the use of her legs

Autopsy—Seven months later she died suddenly I am indebted to Dr S McClements for the findings A dissecting aneurysm of the aorta was present, starting at the top of the arch and extending down to the diaphragm Layers of old hardened fibrin, "looking like boiled lentils," surrounded the vessel and left only a small central lumen Death was due to rupture, near the top, into the left pleural sac The heart was greatly enlarged the cerebral arteries atheromatous, and the kidneys cystic and granular,

PATHOLOGY

The symptomatology becomes clearer when one considers the pathology (see Shennan's monograph) The underlying cause is degeneration in the middle coat Atheroma is not a common cause, these aneurysms seldom start in the abdominal part of the aorta where the grossest atheromatous ulcers are usually found Syphilis plays little or no part The dissection starts in the arch of the aorta as a rule sometimes near the back in the region of ductus arteriosus, but most often in the ascending part The blood may spread downwards into the pericardial sac or any distance along the distal parts of the aorta to the iliac arteries. The result is obstruction of

---

DR ILLINGWORTH REFERENCES

Addis T (1925) *J Amer med Ass* 85 163
— (1931) *Bull Johns Hopk Hosp* 49 203, 271
Alport A C (1932) *Lancet* 1 1247
Baehr G (1926) *J Amer med Ass* 86 1001
Ball W G and Evans G (1932) Diseases of the Kidney London
Berglund H, and Medes G (1935) The Kidney in Health and Disease London
Cautley E (1924) *Arch Pediat* 40 81
Clausen, S W (1925) *Amer J Dis Child* 29 581
Close H G (1930) *Guy's Hosp Rep* 80 45
Cockburn M T (1935) *Med J Aust* 2 643
Faber, H K and James C A (1921) *Amer J Dis Child* 22 7
Fishberg, A M (1934) Hypertension and Nephritis Philadelphia
Glover J A (1939) *Proc R Soc Med* 31 1219
Graubarth J (1937) *New Orleans Med and S J* 89 412
Greenwood F J (1927) *Guy's Hosp Rep* 77 470
Guild, H G (1931) *Bull Johns Hopk Hosp* 48 193
Hill L W (1919) *Amer J Dis Child* 17, 270
Illingworth R S and Payne W W *Quart J Med* in the press
Kollert V et al cited by Platt (1932)
Layman J F (1918) *Laryngoscope* p 65
Lyttle J D and Rosenberg L (1929) *Amer J Dis Child* 38 1052
Parsons L G (1926) *Brit med J* 2 367
Platt R (1929) *Ibid* 1 726
— (1932) *Quart J Med* 1 499
Scheidemandel (1913) *Münch med Wschr* 60 1778
Volhard F and Fahr, T (1914) Die Brightsche Nierenkrankheit Berlin
Wyllie W G and Moncrieff A (1926) *Lancet* 1 125

the blood-supply to various organs, and occasionally relative incompetence of the aortic valves or pressure on adjacent organs, such as the œsophagus. If the sac ruptures again into the lumen of the aorta, the blood-supply is restored and function may be resumed.

The full discussion of the pathological findings by Shennan (1934) should be consulted McGeachy and Paullin (1937) have made a good analysis of 127 cases, and Glendy, Castleman, and White (1937) of 19

CLINICAL FEATURES

Type of patient.—Men are affected about twice as often as women (Kellog and Heald 1933) The disease is rare under the age of 40; in later ages the sex-incidence is more equal The large majority of patients have high blood-pressure, but they are usually in good health.

Occasion of onset.—The patient is usually engaged in some activity, as in the case described, and not uncommonly the physical exertion may be severe, such as lifting a heavy weight Occasionally there is anger or excitement Straining at stool and sexual intercourse have been recorded as causing the attack The onset is essentially sudden. It is rare for any prodromal symptom to be described (Hamman and Apperly 1933)

Pain is of excruciating intensity; "rending," "tearing," "as though something had broken" is the sort of description given. One can hardly do better than quote the words of Swaine, Keyworth, and Latham (1856) in their account of the first case diagnosed during life · "There was a sudden and violent pain, as though the chest was being torn open from side to side by some outward force" The site of onset of the pain varies a good deal, depending, perhaps, on the site of the rupture It may be in the precordium, or in the neck or the back of the chest or in the epigastrium, or in the lumbar region It soon spreads if it has started in front, to the back, or vice versa, or from the chest to the abdomen, and down to the legs Occasionally it radiates up to the neck, but rarely, it is important to note, into the arms A case was diagnosed in life by Lounsbury (1935) in which the jaw and arms were much affected Paræsthesiæ may affect the arms (Moosberger 1934) When a wide progressive spread of pain can be distinguished, the symptom is most striking (Loffler 1935) In spite of the abdominal distribution of the pain, rigidity of the abdominal muscles may be absent (Samson 1931, Barton 1930) This was so in the case described here Another one, a woman of 56, where I made the post-mortem examination, was admitted as a surgical emergency The pain was epigastric, with some local tenderness, but no rigidity. Death took place on the third day and was due to rupture of the aneurysm into the left pleural sac

As is often the case in severe visceral lesions—e g, cardiac infarction—the pain may be sometimes slight or even absent (Hamburger and Ferris 1938, Wood, Pendergrass, and Ostrum 1932)

In the absence of pain the diagnosis would be difficult and probably only confirmed by interference with circulation in peripheral vessels The dominant symptoms would then be syncope, collapse, dizziness, and weakness of the legs. The pain may last from a few hours to a few days.

Shock and collapse are common. They are shown by the coldness, pallor, profuse sweating, and sometimes syncope. Restlessness is seen. As a result the blood-pressure may fall (Hamburger and Ferris 1938) The absence of hypertension may then be misleading in some cases.

Vomiting is common and may be a dominant symptom (Hirschbock and Boman 1922).

Interference with adjacent structures.—The great veins in the thorax may be pressed on and cause cyanosis and venous engorgement The venous pressures may be different in the two arms, or only one external jugular vein may be distended (Claiborne and Holler 1938) The circulation to the brain may be interfered with by pressure on, or obstruction to, the carotid or innominate arteries, causing syncope or paralysis of one side of the body (Tyson 1931). Similarly there may be a great difference in the blood-pressures of the arms, or the pulse may be completely lost at one wrist (Blackford and Smith 1937) The left recurrent laryngeal nerve may become paralysed Pressure on the œsophagus may cause dysphagia (Patrick and Taylor 1929) Pressure on the left lung may cause dyspnœa. Dullness and loss of breath sounds may be found at the left base owing to effusion in the left pleural sac or to collapse of the left lower lobe The effusion may come earlier than the rupture of the aneurysm into the sac; this is quickly fatal Involvement of the renal arteries may lead to anuria or to hæmaturia (Peery 1936, Glendy, Castleman, and White 1937).

If the blood spreads downwards along the first part of the aorta towards the heart, rupture may take place into the pericardial sac and cause instantaneous death. Apart from this an interesting and important clinical finding is the development of murmurs over the aortic valves These may be systolic or diastolic or both Many cases are quoted in which these murmurs have been found (McGeachy and Paullin 1937, Hamman and Apperly 1933). The aortic reflux appears to be relative, and due to distension of the aorta interfering with the closure of aortic valves Left ventricular failure seems to have been caused in this way (Löffler 1935). A curious case is on record (Hamburger and Ferris 1938) in which the extravasation of blood obstructed the mouth of the right coronary artery and produced changes in the electrocardiogram resembling those caused by posterior myocardial infarction.

Peripheral circulation in the limbs.—As stated above, interference with the circulation to the limbs may cause most important and pathognomonic results. The effects on the radial pulses have been mentioned already More significant is the loss of the pulses in the legs This happens so often that it is one of the most characteristic results of dissecting aneurysm. Only one leg may be affected (Claiborne and Holler 1938). After a time the pulses may return, as in my case. A gross lesion of the abdominal aorta may not necessarily cause the pulses in the legs to disappear (Glendy, Castleman and White 1937). With the failure of the circulation the legs become cold and blue and the limbs flaccid Gangrene may develop, but few patients live long enough The power of movement is lost, and the tendon-reflexes disappear. Intense pain may radiate down the legs, or they may become numb and lose sensation.

There is usually leucocytosis, 20,000 or more, slight jaundice, from absorption of blood, has been noticed Slight fever may develop (Osgood, Gourley, and Baker 1936)

RADIOLOGY

The aneurysm appears as a great bowed shadow in the left side of the chest The outline may be irregular Roesler, Gifford, and Betts (1937) have noted a shifting area of pulsation. Pleural effusion or collapse of the lung may obscure the shadow The article by Wood, Pendergrass, and Ostrum (1932) shows good illustrations The degree to which the aneurysm involves the circumference of the aorta causes a good deal of variation in the appearances Sometimes pulsation is not conspicuous, as in the case described

COURSE AND DURATION —TREATMENT

Probably 80 per cent of patients die in the first day or two, but some may survive Death is usually due to rupture of the aneurysm into the left pleural sac or into the pericardial sac The latter seems to be the more common (McGeachy and Paullin 1937)

There is a chance of healing if the aneurysm does not rupture Absolute rest, with very full doses of morphia, is essential Operation has been done to save the circulation to the legs by making an incision connecting the end of the sac with the normal channel (Gurin, Bulmer, and Derby 1935) Since gangrene is uncommon, the risk of the operation seems hardly worth while and the opportunity of doing it will be rare

CLINICAL DIAGNOSIS

Dissecting aneurysm of the aorta causes a syndrome which should be fairly easily diagnosed The patients are usually men, and they have high blood pressure The intense thoracic or epigastric pain is unique It often comes on under stress of exertion or emotion The spread downwards to the lower abdomen and legs is peculiar The loss of circulation and power in the legs is characteristic The site of the pain may resemble that of coronary thrombosis, but the usual electrocardiographic changes are unlikely to be found The blood pressure does not usually fall

Difficult cases may be those with little or no pain, or when vomiting masks the symptoms When the pain is epigastric, some surgical emergency may be suggested , but there is usually little or no abdominal rigidity Careful examination of the peripheral circulation usually reveals pathognomonic findings The appearance of aortic valve murmurs is important and may be followed by rupture of the aneurysm into the pericardial sac

SUMMARY

A case of dissecting aneurysm of the aorta in a woman with high blood pressure, in whom the diagnosis was made during life is described Survival was remarkably long, five years The clinical syndrome as revealed by other reported cases, is reviewed

REFERENCES

Barton J M (1930) Arch Path 10 983
Blackford L M Smith C (1937) J Amer med Ass 109, 2??
Claiborne T S and Holler F D (1938) Amer Heart J 15 358
Glendy R E, Castleman B White P D (1937) Ibid 13 129
Gurin D Bulmer J W and Derby R (1935) N Y St J Med 35 1200
Hamburger M jun Ferris E B jun (1938) Amer Heart J 16 1
Hamman L and Apperly F L (1933) Int Clin 4 251
Hirschboeck F J and Boman P G (1932) Minn Med 15 7?1
Kellogg F Heald A H (1933) J Amer med Ass 100 1157
Löffler W (1935) Schweiz med Wschr 65, 790
Lounsbury J B (1935) Yale J Biol Med 7, 209
McGeachy T E and Paullin J E (1937) J Amer med Ass 108 1690
Mosinger W (1924) Schweiz med Wschr 54 327
Osgood E E, Gourley M F and Baker R L (1936) Ann intern Med 9 1036
Laird K C N and Taylor J F (19[illegible]) Lancet 1 151
Perry T M (1936) Amer Heart J 12 630
Roesler H Clifford H G, Betts W (1937) Ibid 13 426
Samson P C (1931) Ann intern Med 5 117
Shennan T (1934) Spec Rep Ser med Res Coun Lond No 193
Swaine Keyworth and Latham (1850) Trans path Soc Lond 2 106
Tyson M D (1931) Amer J Path 7 581
Wood F C Pendergrass E P and Ostrum H W (1932) Amer J Roentgenol 28 437

A HUGE DISSECTING ANEURYSM

By F Gardner, M B Camb
PATHOLOGIST TO THE SURREY CORONERS

A J Galbraith, M D Edin , D P M
ASSISTANT MEDICAL OFFICER AT HORTON HOSPITAL, EPSOM , AND

S W Hardwick, M D Lond , M R C P , D P M
DEPUTY MEDICAL SUPERINTENDENT OF WEST PARK HOSPITAL, EPSOM

"A dissecting aneurysm is the lesion produced by penetration of the circulating blood into the substance of the wall of a vessel with subsequent extension of the effused blood for a varying distance between its layers In most cases the aorta is the vessel involved though dissecting aneurysms can form in the pulmonary artery and in all grades of arteries down to the small perforating arteries of the brain The sac communicates with the original lumen through a rupture or ruptures of the inner layers of the wall, and though in a few cases it remains as a hæmatoma, it more usually ruptures either to the exterior or back into the lumen" (Shennan 1934)

The case to be described was encountered by one of us (F G) in the course of an inquest We consider that there are many noteworthy features which justify its record Owing to the circumstances attending the death of this boy we have unfortunately no details of his previous health a relatively meagre history, and no firsthand information of the physical condition during his illness

CASE RECORD

The patient, a boy aged 15, was evidently fairly well developed and healthy, said to be keen and proficient at games, and yet not giving the impression of being too robust On Feb 1, 1938, he had a cold and complained of pain in the back He slept well that night and, although he did not attend school on the next day, he was able to return on the 3rd on which day between 1.30 and 5 P.M he committed some misdemeanour and was punished by being made to "squat " in front of his class for about three minutes At about 6 30 P.M he went to the lavatory, where he was seized with such violent pain that he was only able to crawl for assistance He was taken home and seen by his doctor about 7 30 P.M when he had agonising pain and cramp in both legs from the toes upwards He was given a hot bath and some aspirin and then seemed better Later he was seen by the doctor again, when abdominal rigidity was present and some increase in the respiration rate was noted He had a second bath and again appeared considerably relieved Just before 2 A.M on the 4th he called out from his bed complaining of severe pain rising up from the abdomen into the chest and then died almost immediately

Post mortem findings —A post mortem examination was made fifty-seven hours after death Rigor mortis was present but beginning to pass off in all regions The ears and nails were blue, the face was pale, and the pupils were widely dilated

About 1 oz of blood was found in the pericardial cavity The right pleural cavity contained about 1½ pints of blood-stained serum and about 12 oz of blood-clot The left pleural cavity was free from adhesions and contained no fluid The lungs showed some œdema, and partial collapse was present on the right side

The heart (not weighed) was of average size The epicardial fat was increased The right side contained a little pale clot, and the left side was empty The valves were normal and competent showing no signs of organic disease The myocardium appeared healthy

Aorta and main vessels —the appearance of the thoracic aorta was such that a dissecting aneurysm was at once suspected, and therefore the procedure recommended by Shennan (1934) of removing as much of the cardio-arterial system as possible *en bloc* was adopted.

The thoracic aorta appeared to be completely encased in a huge blood-clot, which was continuous with the intrapleural hæmorrhage. The structure of the vessel was completely disorganised, the outer layers appearing to be entirely disintegrated and merged with the huge para-arterial clot, in the centre of which was a thin tube-like structure resembling the finger of a rubber glove. This "tube" was broken up into large segments, which could easily be detached from the surrounding clot The fragmentation of the "inner tube" may have been due to trauma in removing the parts, although as much care was taken as possible.

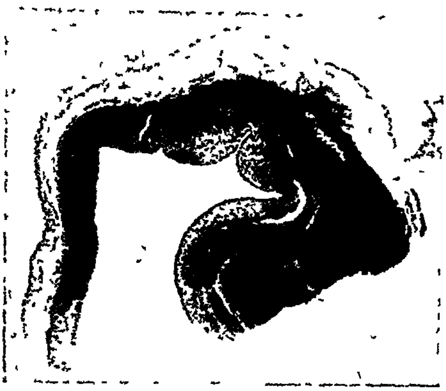


FIG. 1—Pulmonary artery, showing dissection of the vessel wall, with blood-clot lying between the media and adventitia in approximately the right half of the section The left half shows absence of dissection of vessel wall. Hæmatoxylin and eosin (× 7)

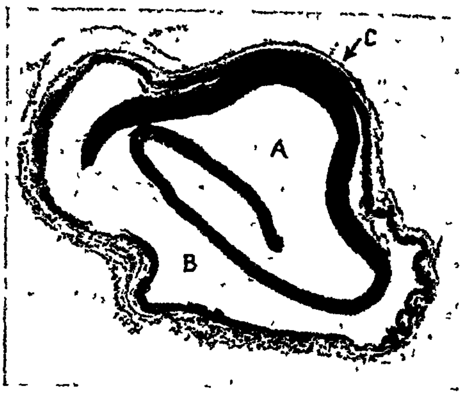


FIG. 2—Abdominal aorta, showing almost complete dissection of vessel wall, the line of cleavage being in the media A, original lumen, B, cavity of the aneurysm, C, undissected vessel wall. Weigert's elastin stain (× 6)

The abdominal aorta was not entirely obscured by clot, but its wall was very dark. A large retroperitoneal hæmorrhage was found just above the level of the bifurcation In the lower limbs a large longitudinal blood-clot was found in the line of the femoral vessels, extending as far down as the anterior and posterior tibial arteries on both sides. Similar clot, continuous below with the para-aortic, was found surrounding the subclavian arteries and the beginning of both common carotid arteries.

The heart and vessels were placed in fixing fluid and subsequently examined by making a series of horizontal sections. In this way the approximate extent of the dissecting aneurysm and its relationship to para-arterial clot were determined. A section just above the aortic valves showed that the outer layers of the aortic wall could still be distinguished but were widely separated from the inner layers by blood. Clot surrounded the pulmonary vessels, and the wall of the pulmonary artery was dissected as far as its right main branch The right coronary and its descending branch (for about 1 in) were clearly dissected; the circumflex branch was thin but not dissected. Sections through the arch and through the descending portion of the thoracic aorta showed the "inner tube" and surrounding clot, but no outer layers were discerned. A dissecting layer of blood was found in both subclavian arteries, at the beginning of each axillary artery, and involving the whole length of both common carotids and about 1 in. of the beginning of both the internal and external carotids

The abdominal aorta showed complete dissection. The process extended into the superior and interior mesenteric arteries, the renal arteries, and the common iliacs and their main branches. In the lower limbs an intramural layer of blood could be traced with certainty down to the level of the popliteal arteries. As previously mentioned, blood-clot extended beyond this point on both sides, but on macroscopic examination alone it was impossible to determine the precise lower limits of the dissecting blood.

Microscopic findings.—In the search for more detailed information, a series of stained sections was prepared from the various regions of the arterial system, particular regard being paid to the precise limits of the dissecting process

Ascending aorta: a section of part of the anterior wall showed that the dissecting blood was situated in the media at about the junction of its outer and middle thirds. There were many blood-cells in the substance of the outer layers of the adventitia, and here and there were accumulations of white cells, mainly polymorphs

Upper part of the descending thoracic aorta: in the midst of the blood-clot the "tube" consisted of intima and about the inner two-thirds of media Here and there small tags of blood-clot adhered to the outer aspect.

Pulmonary artery: the dissecting blood lay between the medial and adventitial coats. The maximal width in the section was about twice that of the vessel wall (fig. 1).

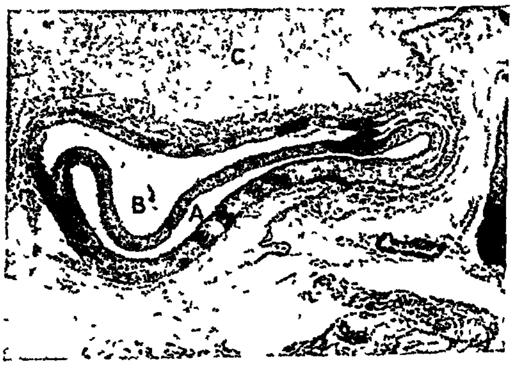


FIG. 3—Right common iliac artery, showing dissection of about two-thirds of the vessel wall, compressed and empty lumen, and blood-clot surrounding the vessel and in the cavity of the aneurysm. A, original lumen, B, cavity of the aneurysm; C, para-arterial blood-clot. Weigert's elastin stain. (× 7.)

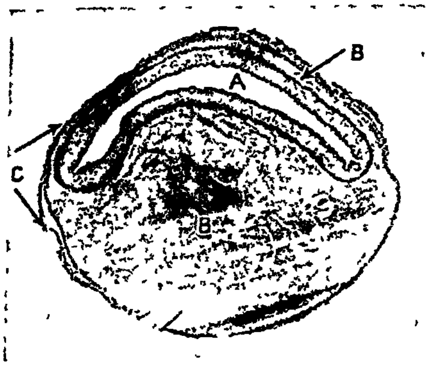


FIG 4—Right femoral artery, showing dissection of the vessel wall between adventitia and media, and compressed and empty lumen: A, original lumen, B, blood-filled cavity of the aneurysm; C, adventitial layers Weigert's elastin stain. (× 7.)

Abdominal aorta the whole circumference of the vessel was dissected except in a small area , the line of cleavage lay between the outer and middle thirds of the media The appearances of the adventitia were similar to those found in the ascending aorta The lumen of the vessel was irregular, flattened, and empty (fig 2)

Superior mesenteric artery blood-cells infiltrated the adventitial layers in its entire circumference, and the clot was in direct contact with the media

Right common iliac artery about two-thirds of the circumference was dissected, the line of dissection being situated about the middle of the media The lumen of the vessel was compressed but contained a few blood cells The whole vessel was surrounded by a large mass of clot (para-arterial), but there was no apparent communication between this and the aneurysm (fig 3)

Right femoral artery there was a dissecting layer of blood throughout the whole circumference, varying in thickness from a mere streak, a few blood cells thick in one part, to a large clot, the maximal width of which was at least equal to the diameter of the arterial walls It was situated immediately external to the external elastic membrane, and the outer wall of the aneurysm was formed by a well-preserved band of adventitia (fig 4)

Left femoral artery: the general appearance was very similar to that of the right femoral artery, except that in one small sector of the vessel no definite dissection had taken place The lumen was almost completely obliterated

Right popliteal artery dissection involved the whole circumference but was limited to the adventitial layers With the elastic tissue stain fragments of adventitial tissue could be seen embedded in clot In certain areas the dissecting blood was bounded by a distinct band of adventitia, but elsewhere it appeared to merge with the large para-arterial clot At one point the blood clot was bounded internally by the external elastic membrane, whereas elsewhere there were several layers of adventitia between it and the media (fig 5)

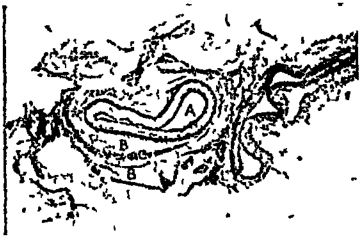


FIG 5 Right popliteal artery, showing dissection of the adventitial layers The elastic tissue fibres of the adventitia are still visible in the blood clot A original lumen , B, blood clot C elastic tissue fibres of the adventitia Weigert's elastin stain (× 3)

Left popliteal artery the appearances were similar to those seen in the right popliteal artery

Left posterior tibial artery (from the lower part of the leg): there was no evidence of dissection but in the loose connective tissue at some distance from the vessel there was a distinct blood-clot

Right anterior and posterior tibial arteries, just below the termination of the popliteal the vessels were embedded in a large mass of blood clot, which encroached on their walls In practically all regions the blood was in direct contact with the external elastic membrane but here and there was separated from the media by a distinct band of adventitia (This applied to both vessels)

Right posterior tibial artery (from the lower part of the leg) the walls of the vessel appeared intact in most of its circumference, but there was an extensive para-arterial clot, which at one point seemed to invade the adventitial layers and here it was separated from the media by a thin band of adventitia only (fig 6)

In all the sections there was no obvious abnormality in the microscopic structure of the individual layers apart from what could be caused by trauma, pressure, or artefact

Other organs the stomach and intestines appeared normal, but the stomach still contained the remains of a large meal, and blood had infiltrated the base of the mesentery The liver was small, pale grey, and " bloodless " The gall-bladder was normal The spleen was slightly enlarged, pink, and rather soft The pancreas was normal The kidneys had a normal appearance, but in each blood was present in the pelvis The suprarenal glands, urinary bladder, and testicles appeared normal, but the spermatic cord on each side was encased in clotted blood The surface veins of the brain were engorged The basal arteries appeared particularly thin and translucent The brain itself showed nothing grossly abnormal when incised At the base of the neck there was considerable oedema of the tissues, and the great veins were almost empty

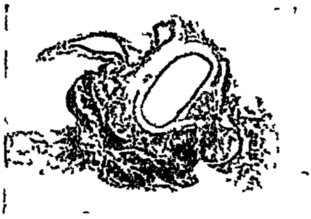


FIG 6—Right posterior tibial artery from the lower part of the leg, showing para arterial clot encroaching on the media in one sector Hæmatoxylin and eosin stain (× 3)

COMMENTS

We believe that this dissecting aneurysm is probably the most extensive on record According to Shennan (1934) the aneurysm in Tessier's (1842) case was the longest which had been reported , the dissection extended from the ascending aorta upwards to the common carotid arteries and downwards to the popliteal In our case we are certain that dissection had taken place as far as these limits and we present evidence that the process had extended even further

It is probable that dissecting aneurysm is a more frequent cause of sudden death than is generally realised and that some cases at present registered (without confirmatory autopsies) as coronary disease are in reality cases of dissecting aneurysm Ames and Townsend (1897) and Oppenheim (1918) state that spontaneous rupture of the aorta was met with once in 500 autopsies According to Arenburg (1932) it is much commoner than rupture of the heart

Although in many of these cases which are the subject of coroners' inquests a clinical history is unobtainable, we were furnished with certain brief but important facts The symptoms of dissecting aneurysm depend on the underlying pathological mechanism In most cases the dissection begins as a tear or rupture of the vessel wall usually in the ascending aorta (primary rupture) This is indicated clinically by sudden and severe pain in the front of the chest accompanied by collapse After a period (hours to days) in which there is amelioration of the more severe symptoms the patient succumbs very suddenly and dramatically as a result of the external rupture of the aneurysm, usually into the pericardium. In our own case there was a typical sudden onset. However, from the story, the initial pain was referred to both lower limbs, which fact suggests that dissection began in the lower abdominal aorta Hours later, just before death, a severe pain was experienced, which was described by the patient as "welling up" in the chest This may have indicated terminal intrathoracic hæmorrhage

In dissections beginning in the thoracic aorta it is usually possible to demonstrate with some precision the primary or initial tear of the inner coats In our case this was not possible, for the inner layers in the thoracic and abdominal aorta were entirely separated from the outer coats when first examined and were already torn and fragmented in several regions The external rupture in a typical case of dissecting aneurysm takes place at a point near the primary rupture in the ascending aorta, with terminal hæmorrhage into the pericardium. In our case there was hæmorrhage into the right pleural cavity, the loose tissues surrounding the thoracic aorta, and the lower retroperitoneal space in the abdomen, and along the line of several of the main branches of the aorta—e.g., common carotid, renal, and spermatic arteries and those of the lower limbs Only a small amount of blood was found in the pericardial cavity External rupture, therefore, had taken place in several situations and probably not simultaneously.

In the thoracic and abdominal portions of the aorta dissection had taken place in its usual situation—i e, between the middle and outer two-thirds of the medial coat The line of dissection in the vessels of the lower limbs was placed further out—i.e, between the media and the adventitia or in the adventitial layers We conjecture that the hæmorrhages in the legs, which formed extensive para-arterial clots, probably took place in the earlier hours of the patient's illness, possibly they were formed as an oozing through the outer adventitial layers rather than by rupture at one or two points It is difficult to gauge when and how the extensive hæmorrhage took place round the thoracic aorta, or when dissection of the pulmonary and coronary vessels developed, but it seems that these must have happened near the end, and that the intrapleural hæmorrhage was terminal.

The para-arterial clots found in the lower limbs lay along the line of the femoral and popliteal vessels and extended as far as the lower third of the legs along the course of the posterior tibial arteries Microscopic sections showed dissection in the popliteal arteries of both sides and in the beginning of the anterior and posterior tibial arteries on the right side The left posterior tibial artery in the lower third of the leg appeared normal, but some clot was seen in the section at a distance from the artery, which was obviously due to blood which had tracked down The right posterior tibial artery, from the same approximate level, was intimately connected with para-arterial clot and at one point appeared to be separated from the medial coat of the vessel by a thin layer of adventitia only. It seems therefore that the extreme limits of dissection in the lower limbs were the popliteal artery on the left side and the lower third of the posterior tibial on the right

Another feature of considerable rarity was the dissection of the pulmonary artery So far as we are aware, there are only three reliable references in the literature, and in each of these the dissection affected the pulmonary artery (or its branches) only Dissection in these cases was evidently caused by disease of that artery. In Durno and Langdon Brown's case (1908) there were a patent ductus arteriosus, a hypertrophied right ventricle, and atheroma of the pulmonary artery; in Duffield's case (1882) tricuspid valvular disease, an enlarged right ventricle, and advanced atheroma of the pulmonary artery; and in the case cited by Walshe (1862) "extensive calcareous concretions" in the pulmonary artery. In our case dissection of the pulmonary artery appears to have been an extension of the dissecting process in the aorta, the extravasated blood, having reached the level of the valves, being reflected, as it were, into the substance (media) of the pulmonary artery and extending into the right main branch but not into the left

Dissection of a coronary vessel must be extremely rare and to our knowledge has not been previously described The small quantity of blood in the pericardium may have been derived from the coronary dissection

Comment must be made on the age of the patient In Shennan's (1934) analysis of 300 cases only 5 occurred in the second decade (3 male and 2 female) The youngest patient was a boy of thirteen described by Wasastjerna (1903); Hübschmann's (1916) patient was fifteen; and the remaining 3 were aged seventeen, nineteen, and twenty. Ranking's (1860) case in the boy of nineteen is interesting, for the post-mortem appearances resembled those seen in our case "two quarts of fluid blood in right pleura the entire track of the aorta infiltrated with clotted blood blood had been extravasated extensively between the folds of the mesentery and into the pelvic cellular tissues . pericardium healthy . . heart medium size and healthy" The limits of the dissecting process were not described

We do not propose to discuss in detail the causation and pathogenesis of our case The extensive disintegration of the major portion of the aorta would render any conclusions from microscopic sections of doubtful value Also there is paucity of facts from the clinical aspect The heart was to all intents and purposes free from disease, and there was perhaps a rather surprising absence of any gross lesions in the coats of the vessels we examined One can hardly attach significance to the few white cells found in the outer layers of the abdominal and ascending aorta—they may have been derived from the dissecting stream of blood We are inclined to believe that the stress of defæcation was the immediate exciting cause, the acute symptoms came on immediately after defæcation on Feb 3 We can offer no explanation of the history of backache immediately preceding this date. Medial degeneration (see Shennan 1934) was probably the underlying causal factor However, in the relatively intact abdominal aorta (which we presume was the seat of primary rupture) we found little microscopical evidence of degenerative changes in the medial coats

SUMMARY

(1) The biggest dissecting aneurysm on record is described Dissection affected the whole aorta and its main branches, and the process extended into the lower limbs as far as the popliteal artery on the left side and the posterior tibial in the lower third of the leg on the right side

(2) There was also dissection of the pulmonary artery and its right main branch Hitherto, concomitant dissection of the pulmonary artery and of the aorta has not been described. Dissection of the pulmonary artery alone is very rare

(3) The right coronary artery was dissected This is probably unique

(4) The patient was one of the youngest on record to have a dissecting aneurysm

We wish to thank Mr G Wills Taylor, H M coroner for West Surrey, for permission to publish this case

REFERENCES

Ames and Townsend (1897) *Maryland med J* 37, 199
Arenburg H (1932) *Amer Heart J* 8 216
Duffield J F (1882) *Amer J med Sci* 83, 77
Durno L and Brown W L (1908) *Lancet* 1, 1693
Hübschmann (1916) *Münch med Wschr* 63 394
Oppenheim (1918) *Ibid* 65 1236
Ranking, W H (1860) *Brit med J* 2 665
Shennan, T (1934) *Spec Rep Ser med Res Coun Lond* No 193
Tessier, M (1812) *Lond Edinb monthly J* 2 1066
Walshe W H (1862) A Practical Treatise on the Diseases of the Heart and Great Vessels London p 531
Wassastjerna, I (1903) *Z klin Med* 49, 405

COD-LIVER-OIL DRESSINGS

THEIR MODE OF ACTION

BY M LICHTENSTEIN, L R C P E

(From the Laboratory of the Royal College of Physicians, Edinburgh)

THE local treatment of infected wounds burns, ulcers, amputation stumps, osteomyelitis, and some other affections with dressings soaked in cod liver oil or covered with a thick layer of ointment containing in a neutral base (Vaseline) a large amount (25 per cent) of cod liver oil has come into prominence only during the last seven or eight years Since the publications of Löhr (1934) over a hundred papers have been written on the subject, most writers recording their experience with the original or modified method of Löhr Almost all authors record remarkable success as the result of this treatment especially in otherwise intractable affections A note in THE LANCET (1934) describes the method, some indications, and its effect and advantages

Clinical and laboratory investigations were conducted simultaneously to ascertain the part played by various factors in yielding the good results

According to Löhr (1934) the complete immobilisation given to the affected part by the combined plaster-of paris and cod liver oil dressing provides the most favourable condition for healing Although this factor is of primary importance in some cases, such as osteomyelitis and compound fractures, it does not seem to play such an important rôle in other conditions such as burns and ulcers In fact Zoltan (1936), Steel (1935) and others modified the original Löhr method by using as an outer cover to the cod-liver oil dressing jaconet instead of plaster of paris and claim to have achieved equally good results Both the jaconet and the plaster of paris serve the same purpose in that they create a sealed " humid chamber " (the plaster only after some time when its porosities had been sealed by the dried discharge from the wound and by the oil permeating it) This " humid chamber " according to Bier (1917) powerfully stimulates the proliferation of granulations and so speeds up the process of healing

Löhr (1934) Schaer (1935) and Bosse (1935) emphasise the fact that cod liver oil forms a protective and non irritating layer on the surface of the wound and thus protects it from injury when the dressing is changed for the separation takes place between the oily layers and not between the wound surface and the gauze, as happens when aqueous solutions are employed Another advantage claimed is that the use of cod liver oil makes this procedure painless and saves the patient from much suffering and shock. The same purpose is served by the fact that the dressing needs renewal only once in three to fourteen days

Kümmel and Jensen (1936) assert that cod liver oil imbibes dead tissue and accelerates liquefaction (necrolysis), thus cleaning the surface of the wound and removing the medium upon which bacteria feed and thrive

Traxl cited by Lauber (1934b) demonstrated with the help of Warburg's apparatus that the metabolic rate of leucocytes increased by 420 per cent under the influence of cod liver oil This suggests that their vitality and hence probably their phagocytic powers are stimulated by the oil

In an extensive series of experiments Nordman and Hoegler, Bisceglie Katzenstein and Knacke (all quoted by Lauber (1934b) and Minami and Tomikawa (1933) showed that vitamins A and D (which are contained in cod liver oil) had a local growth promoting and stimulating action on connective tissue and epithelial cells

Lauber (1934a) Drigalski (1934), and especially Lundh (1936) and Saito (1937) proved in a conclusive series of experiments that vitamins A and D were absorbed through the surface of the wound into the general circulation and then exerted a beneficial action on the whole organism

Löhr (1934a) and Kümmel and Jensen (1934) made observations which led them to conclude that cod-liver oil had a detoxicating effect on bacterial toxins

Various authors have discussed the question of the bactericidal power of cod liver oil and come to very contradictory conclusions The present work was undertaken to investigate this last point and in the course of it some new facts were discovered

BACTERICIDAL POWER OF OILS

Rutsert cited by Lansberg (1920), found that fats had a bactericidal action Achard and Foix (1916–17) could not confirm this Bitter (1911) found linseed oil to be bactericidal, but not olive oil Koch cited by Goertzen (1935), and McMaster (1910) state that olive and linseed oils as well as liquid paraffin are devoid of bactericidal properties Lansberg (1920) found that oils were sterile in the usual commercial preparations , that olive oil, if contaminated, became sterile again in ten days and that the bactericidal power of different oils and even separate samples of the same oil varied but had no relation to the amount of free or unsaturated acids present Lansberg thinks that the factors responsible for the bactericidal action of oils are lack of air and lack of water Löhr (1934a) demonstrated in an extensive series of experiments that emulsions of staphylococci strepto cocci and *Bacterium coli* lost their vitality in cod liver oil in three hours but survived in liquid paraffin for more than fourteen days Löhr suggests that the bactericidal action of cod liver oil depends on the " increased surface tension of the oil which prevents the bacteria from budding " Löhr here seems to imply that the surface tension of cod liver oil is greater than that of water Since this explanation of the bactericidal action has been quoted by other writers it seemed desirable to investigate the matter more closely

Reference to various textbooks did not yield any exact information concerning the surface tension of cod liver oil An approximate determination was there fore carried out by the drop method, the instrument being standardised by the use of distilled water, which, according to Hodgman's "Handbook of Chemistry and Physics," has a surface tension of 73·13 dynes/cm at 16° C. The results are as follows. ethyl alcohol 22·77 dyn/cm., olive oil 35·78 dyn/cm., cod-liver oil 35·78, and liquid paraffin 34·15 at 16° C. The values for alcohol and olive oil agree with those recorded by other workers and show that the method employed gives approximately correct results It will be seen that the values for liquid paraffin and cod-liver oil are very nearly equal and that they are both somewhat less than half that of distilled water. It follows that the suggestion that cod-liver oil has a surface tension higher than that of water is entirely wrong Further, the fact (mentioned by Lohr) that liquid paraffin has no bactericidal action in spite of its almost identical surface tension implies that the explanation of the action of cod-liver oil as dependent on its surface tension cannot be accepted.

Goertzen (1935) experimented with ten different oils and sixteen varieties of bacteria, but found that, out of the ten oils, nine, including cod-liver oil, were without bactericidal action, as revealed by his technique (exposure of the bacteria to the oil for forty-eight hours in the presence of a nutrient medium). He concludes that the efficiency of the Lohr dressings does not depend on the bactericidal action of cod-liver oil

From this brief survey it seems that opinions are very conflicting, presumably in consequence of the different methods adopted by the various workers in their investigations The present investigation may be considered under three headings. (1) the influence of oils on bacteria in a nutrient medium; (2) the influence of oils on bacteria lacking a nutrient medium; and (3) the effect of ultraviolet irradiation on the bactericidal power of cod-liver oil, and the rôle of organic peroxides

(1) *The influence of oils on bacteria in a nutrient medium* was investigated as follows:—

Method A Slopes of 1 per cent glucose-agar were prepared, a very small amount of agar being taken, so that the upper limit of the slope was 2 in. from the bottom of the test-tube. Over this the oil was poured to stand 3 in. from the bottom of the tube, thus covering the agar completely. A platinum-loopful of bacteria from a 24-hour sloping-agar culture was then taken and inoculated on the surface of the agar slope under the oil. This was put into the incubator at 37° C., successive subcultures being taken at 24-hour intervals and incubated, the results being noted after twenty-four hours.

From preliminary experiments it was found that staphylococci gave positive growth in subcultures taken up to about two weeks in the case of cod-liver oil, and that subcultures taken after this period were sterile In the case of liquid paraffin, cultures could be obtained after five weeks This was proof that cod-liver oil had a very slow but distinct bactericidal effect To ascertain the part played by vitamins, a sample of cod-liver oil was enriched with vitamins A and D by the addition of two drops of halibut-liver oil to each c cm. of cod-liver oil (One drop of halibut-liver oil contains 1250 International Units of vitamin A and 62 of vitamin D; and 1 c cm of cod-liver oil contains 600 I U. of vitamin A and 85 of vitamin D.) Method A was employed and from the results, given in table I the following conclusions are drawn:—

(1) Staphylococci, even in a nutrient medium, succumb under cod-liver oil in two weeks.

(2) *B. coli* are resistant to cod-liver oil in a nutrient medium.

(3) The addition of vitamins A and D does not influence (1) and (2).

(4) Both staphylococci and *Bact. coli* survive indefinitely on a nutrient medium covered with liquid paraffin.

TABLE I—INFLUENCE OF OILS AND VITAMINS ON BACTERIA ON A NUTRIENT MEDIUM

Oils and vitamins	Subcultures made after— 1 day	2 days	11 days	13 days	15 days	16 days	22 days
				Staphylococci			
C L.O. .	††††	††††	††	†	—	—	—
C L O and halibut-liver oil .	††††	††††	†††	†	—	—	—
Liquid paraffin	††††	††††	††††	††††	††††	††††	††††
				B coli			
C L O .	††††	††††	††††	††††	†††	††	†††
C.L O. and halibut-liver oil .	††††	††††	††††	††††	†††	††	†††
Liquid paraffin	††††	††††	††††	††††	††††	††††	††††

C L O = cod-liver oil † = plus

(2) *Influence of oils on bacteria lacking a nutrient medium*—Preliminary experiments showed that it was very difficult to prepare a bacterial emulsion by simply taking a loopful of bacteria from the surface of an agar culture and stirring the oil with it; the bacteria stuck together and in spite of every effort remained clumped When a platinum-loop is introduced into the oil to make a subculture, it is impossible to say, with any degree of certainty, whether or not the clear drop of oil on the loop after withdrawal contains bacteria, and therefore the results cannot be considered reliable. The following method was devised to obviate this difficulty.

Method B. Fine sterile sand was poured into small (3 in. × ½ in.) test-tubes to a depth of ¼ in. Over it the oil was poured to stand 1 in. above the level of the sand. A loopful of bacteria from the surface of an ordinary sloping-agar 24-hour culture was then introduced and stirred first slowly with the sand and then vigorously for 2 min. The whole was then placed in the incubator.

For the purpose of subculturing, some of the sand was removed after stirring again with a platinum loop and smeared over the surface of a sterile agar slope.

This procedure gave reliable results The slopes were examined after 24 hours' incubation, and summary of the results is given in table II Subcultures from the oil on to the surface of agar were made daily from liquid paraffin and olive oil, hourly from cod-liver oil, and quarter-hourly from linseed oil. From the results the following conclusions are drawn:—

(1) Liquid paraffin, although it excludes air and water from the environment of bacteria suspended in it (Lansberg 1920) and has a different surface tension from water (Lohr 1931a), does not have any influence on the vitality of the organisms for thirty-five days, which was the limit of the experiment.

(2) Olive oil kills bacteria suspended in it in seven to ten days.

(3) Cod-liver oil has the same effect in seventeen to twenty-two hours.

(4) Linseed oil (boiled) kills bacteria in one to one and a quarter hours.

TABLE II—THE INFLUENCE OF OILS ON BACTERIA LACKING A NUTRIENT MEDIUM

Oil	Organisms	Abundant growth for—	Diminished growth until the—	Sterile from the—
Liquid paraffin	*Bact coli*	35 days		
	Staphylococcus	35 ,,		
	B pyocyaneus	35 ,,		
Olive oil	*Bact coli*	4 days	9th day	10th day on *
	Staphylococcus	5	7th ,,	8th ,,
	B pyocyaneus	4 ,,	6th ,,	7th ,,
Cod liver oil	*Bact coli*	21 hours		22nd hour on
	Staphylococcus	16 ,,	20th hour	21st ,,
	B pyocyaneus	12 ,,	16th ,,	17th ,,
Linseed oil	*Bact coli*	15 min	60th min	75th min on
	Staphylococcus	15 ,,	60th ,,	75th ,,
	B pyocyaneus	30 ,,	45th ,,	60th ,,

* on = onwards

It might seem that, of the oils tested, linseed oil is the most suitable for the treatment of wounds, in view of its strongest bactericidal power. However, it was noticed that this oil, when brought on to the surface of agar with the loop for subculturing purposes, dried up very quickly and formed a crust or scab. On the surface of a wound such a scab would constantly irritate tender granulations, in this way destroying the beneficial effect of the bactericidal action of the oil.

(3) *Effect of ultraviolet irradiation on the bactericidal power of cod liver oil, and the role of organic peroxides.*—Harris, Bunker and Milas (1932) found that "the bactericidal properties of vapour arising from the surface of vegetable and animal oils which had been irradiated with ultraviolet rays was proportional to the increase in peroxides formed in these oils during the process of irradiation." Stevens (1936) demonstrated that salt solution, shaken with irradiated cod liver oil, "ab- or ad sorbed" peroxides from it and was then found to exert bactericidal action on hæmolytic streptococci. This action was abolished by the addition of sodium thioglycolate—a reducing agent—and evidence was found that the action did not depend on the presence of aldehydes.

In the present work it was observed that the suspension of bacteria in the oil settled on the surface of the sand after a time, and, when the oil had become sterile, the film of bacteria had acquired a brownish colour, which became still deeper on standing for a few days. This suggested that oxidation had taken place and that the substances responsible for the bactericidal action of the oils might be the organic peroxides. To test it, a further series of experiments was undertaken. Two points required to be elucidated: (1) the action of irradiated cod liver oil on bacteria, and (2) the relation between the bactericidal properties of an oil and its content of peroxides.

Method C.—Cod liver oil 50 c.cm. was poured into a flat porcelain vessel, forming a layer 0.5 cm. deep, and subjected to the rays of a mercury-vapour quartz lamp from a distance of 50 cm. for three hours in accordance with the method of Stevens (1936). The irradiated oil was now tested by method B, the three other oils and liquid paraffin being used as controls.

The controls gave the same results as in table II and the irradiated oil gave results summarised in table III. These tests were repeated on several occasions with consistent results. Table III, when compared with table II, shows that after irradiation the bactericidal power of cod-liver oil is enhanced.

For the purpose of estimating the amount of organic peroxides present in the respective oils, a modification of a method described by Marks and Morell (1929) has been employed. The method is based on the fact that organic peroxides oxidise potassium iodide in an acid solution, and the liberated iodine can be titrated with sodium thiosulphate with starch as an indicator.

TABLE III—COD LIVER OIL IRRADIATED BY METHOD C

—	Abundant growth for—	Diminished growth until the—	Sterile from the—
Bact coli	150 min	—	3rd hour on
Staphylococcus	75 ,,	150th min	3rd ,,
B pyocyaneus	30 ,,	—	60th min

Method D.—Oil 1 g. is thoroughly shaken with 25 c.cm. of glacial acetic acid, whereupon 1 c.cm. of a 50 per cent. solution of sulphuric acid is added. The mixture is left to stand for three hours, and then 2 c.cm. of a cold saturated aqueous solution of potassium iodide is added. After forty-five minutes 2 c.cm. of the fluid is pipetted off and diluted with distilled water, and the liberated iodine is immediately titrated with N/100 $Na_2S_2O_3$, two drops of a 2 per cent. solution of starch being first added as an indicator.

The experiments are summarised in table IV, which shows that three controls were used: water, acid, and benzoyl peroxide. The figure for active oxygen in the last column depends on the length of time during which the action is allowed to proceed and so cannot be taken as an absolute measure of the amount of peroxide present. These experiments have been repeated many times, and the figures given are typical of the results obtained. It will be seen that cod liver oil yields rather more active oxygen than does olive oil, and that the irradiated cod liver oil contains still more. The highest content of all is found in linseed oil.

TABLE IV—ESTIMATION OF ORGANIC PEROXIDES BY METHOD D

Bottle No	Ingredients	Amount of N/100 $Na_2S_2O_3$ used up by 2 c cm from each bottle	Equivalent to mg of active oxygen in 1 g of oil
1	Distilled water 25 c.cm	0.01	(0.01)
2	CH_3COOH 25 c cm	0.1	(0.11)
3	Olive oil 1 g	1.0	1.16
4	Cod liver oil 1 g	2.2	2.33
5	Irradiated cod liver oil 1 g	2.8	3.21
6	Linseed oil 1 g	3.5	4.00
7	Benzoyl peroxide 1 g	10.0	66.10

In table V the bactericidal action of various oils is compared with their content of peroxides. It will be seen that there is an inverse relationship between the length of time required of the oil to kill the bacteria and the peroxide content. Attempts were made to remove the peroxides from the irradiated and non irradiated oil, to see whether the bactericidal power was thereby abolished, but serious difficulties were encountered in this attempt. The oil was treated

TABLE V—RELATION BETWEEN BACTERICIDAL ACTION OF OILS AND THEIR PEROXIDE CONTENT (METHODS B AND D)

Oil	Mg. of active oxygen in 1 g. of oil	Time in which full bactericidal action is reached on—		
		Bact coli	Staphylococci	*B. pyocyaneus*
Olive oil .	1·16	240 hrs	192 hrs	168 hrs.
Cod-liver oil .	2 35	22 ,,	21 ,,	17 ,,
Irradiated cod-liver oil	3 24	3 ,,	3 ,,	1 hr.
Linseed oil .	4 06	1½ ,,	1½ ,,	1 ,,

with dilute sodium thioglycolate (a reducing agent) or with active charcoal (an adsorbent). After the treatment the oil was found still to retain the greater part of its peroxides. The possibility is therefore not excluded that factors other than the peroxides may contribute to the bactericidal action of the oil.

DISCUSSION

The first object of this work—namely, to establish whether or not cod-liver oil has any bactericidal power—has been achieved There can be little doubt that the striking results obtained by many authors with cod-liver-oil dressings are due, in some degree at least, to the fact that the oil has a definite bactericidal power. The question, however, arises as to why the use of cod-liver oil in dressings should possess advantages over that of other bactericidal preparations. An important factor in this connexion is the fact that the cod-liver-oil dressing is non-irritant to the tissues. Indeed, so far from damaging these, it supplies them with vitamins and possibly other forms of nourishment, and it mechanically protects the young granulation-tissue and epithelium from damage by the dressing The stimulation of leucocytes by cod-liver oil, observed by Traxl (Lauber 1934b), may also contribute to its beneficial effect Perhaps these various factors, together with its bactericidal action, may explain the clinical efficiency of cod-liver oil in dressings

In the course of this work it has been found that the bactericidal power of cod-liver oil is substantially enhanced by irradiation with ultraviolet rays from a mercury-vapour lamp. Parallel with this, the peroxide content is increased It is to be expected that such irradiated oil may prove even more efficient than the non-irradiated product for clinical use. The irradiated oil should therefore be given a clinical trial

SUMMARY

(1) A brief survey is given of the views of various authors on the mode of action of cod-liver oil dressings

(2) Cod-liver oil has a definite bactericidal power.

(3) Irradiation of cod-liver oil with ultraviolet rays greatly enhances this power.

(4) The bactericidal action of an oil is closely related to its content of peroxides

(5) The merits of cod-liver-oil dressings are emphasised, and a clinical trial of irradiated oil is advocated

I am indebted to Lieut.-Colonel A. G. McKendrick and Dr W. O. Kermack for their help and to the council of the Royal College of Physicians of Edinburgh for kindly providing all the necessary facilities.

BIBLIOGRAPHY

Achard, Ch., et Foix, Ch (1916) *C R Soc Biol Paris*, 79, 209.
Ambrosi, F (1937) *Policlinico*, sez. chir., 44, 273
Bier (1917) *Dtsch med Wschr* No. 23
Bitter, L (1911) *Z. Hyg* 69, 501

Continued at foot of next column

DR LICHTENSTEIN. BIBLIOGRAPHY (*continued*)

Bosse, P. (1934) *Arch klin Chir.* 180, 206.
— (1935) *Dtsch med Wschr* 61, 1623
— (1936) *Münch med Wschr* 83, 601
Cabanac (1937) *Arch. Soc Sci med biol. Montpelier*, 18, 38
Chevallier, A., Carcassonne, F., and Luccioni, F. (1937) *Progr. méd Paris*, No 3, 89
Daver, M B. (1937) *Brit med J* 1, 169.
Dengler (1935) *Arch klin Chir* 185, 1.
Dreyfus, J R (1935) *Schweiz med Wschr.* 65, 1148.
Drigalski, W. (1933) *Klin. Wschr* 1, 308.
— (1934) *Beitr klin Chir* 160, 100.
Epstein, E (1937) *Amer J. Surg* 36, 472.
Flimm, W. (1936) *Zbl Chir* 63, 2500.
Goedel, R (1932) *Ibid*, 59, 78.
Goertzen, J (1935) *Zbl Bakt* 134, 169.
Harris, R S, Bunker, J W. N, and Milas, N. A. (1932) *Industr. a. Engin Chem.* 24, 118
Herlyn, K. E (1936) *Beitr. klin Chir.* 165, 278.
Hodgman, C. (1935) Handbook of Physics and Chemistry, 20th ed, Cleveland, Ohio
Horn, Z., and Sándor, S (1934) *Dtsch med. Wschr* 60, 1018.
Horsch, K. (1935) *Arch klin. Chir* 184, 258
Jencio, H. (1935) *Münch med. Wschr* 82, 1485
Katzenstein, M, and Knacke, E. (1931) *Z. Krebsforsch* 33, 378
Kümmel, H, and Jensen, W. (1936) *Dtsch Zschr Chir* 248, 235
Lancet (1934) 2, 367.
Lang (1935) *Schweiz med Wschr.* 16, 1248
Lansberg, L. M (1920) *Zbl Bakt.*, 51, 280
Laquer, F. (1933) *Arch exp Path. Pharmak* 170, 176
Lauber, H J. (1934a) *Beitr klin Chir.* 164, 565.
— (1934b) *Dtsch. med Wschr* 60, 569.
Leeman (1933) *J exp. Med.* 89, 171
Löhr, W (1934a) *Zbl. Chir* 61, 1686, 1815.
— (1934b) *Chirurg* 6, 5, 263
— (1934c) *Arch klin. Chir* 180, 206
— and Treusch (1934) *Zbl Chir.* 61, 1807.
Lücke, H (1935) *Dtsch med Wschr* 61, 967, 1638
Lundh, G (1936) *Zbl Chir* 63, 2860.
McMaster, P D (1919) *J infect Dis* 24, 378
Marks, S, and Morrell, R S (1929) *Analyst*, 54, 503.
Minami and Tomikawa (1933) *Hyu-to-Hizsunyo*, I, tieft 6
Mutschler H H (1937) *Münch med Wschr.* 84, 692
Rinne (1934) *Echo méd Nord*, 2, 430.
Saito, R (1937) *Zbl. Chir* 64, 818
Schaer, H (1935) *Schweiz. med Wschr.* 65, 724
Steel, J. P. (1935) *Lancet*, 2, 290.
Stevens, F. A (1936) *J infect Dis* 58, 185.
Stevenson, E (1936) *Brit. J. Ophthal* 20, 416.
Timpe, O (1936 *Beitr. klin Chir* 165, 243
Zoltán, L (1936) *Zbl Chir.* 62 3031.
Zuelzer, W. (1934) *Ibid*, 61, 1695.

MINIATURE RADIOGRAPHY

WITH TWO TUBES, TWO CAMERAS, AND ONLY ONE GENERATOR

BY B. A. DORMER, M.D. Durh, D.P.H., T.D.D
MEDICAL SUPERINTENDENT OF THE KING GEORGE V JUBILEE HOSPITAL FOR TUBERCULOSIS, DURBAN; AND

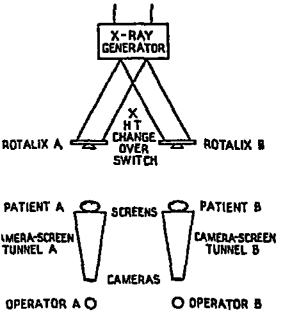
M. GIBSON
GRADUATE I E E.

THE advantages and technique of miniature radiography—i e, photography of a still image produced with X rays on a fluorescent screen—have previously been described in these columns (*Lancet* 1939, Dormer and Collender 1939). The apparatus here detailed (see figure) abolishes any loss of time in placing the patients in position for mass radiography.

Rough specification—Rotalix tubes and camera-screen tunnels to be mechanically coupled and capable of vertical movement. Besides the Rotalix tubes being counterbalanced, all four corners of the camera-screen tunnel should be counterbalanced. The camera end may have to be placed between two vertical guide rails because of the weight of the Collender camera. The apparatus could be so arranged that the action of the exposure switch operates a mechanism for turning on the film

X-ray generator—Condenser-discharge type giving 50–90 kVP, in steps of 2½ kV, or in tens and units About 350 mA tube current should be used and 5 ft screen-focus distance These could be fixed Exposure time about 3/100 sec.

Radiographic output—The build-up on a Philips condenser-discharge plant takes about 15 sec; therefore one exposure every 30 sec. is possible This gives us 600 exposures in 5 hours with two operators The processing of a spool of seventy-two pictures takes about 30 min If the two operators have small-tank equipment, they can do about ten spools in 2½ hours—i.e. 720 radiograms Special cooling may be necessary for the tubes, because, in spite of the change-over, they are to work almost continuously for 5 hours a day



Sequence of events — Operator A places patient in position, adjusts the height of his apparatus, and takes his picture. Meanwhile operator B has placed his patient in position, has adjusted the height of his apparatus, and is waiting with one hand on the H T change-over switch As soon as A's exposure has been made, B switches over the high tension and takes his picture Meanwhile A has set up his second patient and is ready to change over the high tension In this way no time is lost in placing patients in position Some form of marking device must be used, the number corresponding to the patients numbers, either an automatic device in the Collender camera or a hand manipulated device on the fluorescent screen

The plant suggested would be cheaper, less elaborate, and more easy to operate at high speed than one with electric lifts and other devices. The economy of one generator enables one to be designed for the heavy duty imposed on it

REFERENCES

Dormer B A and Collender K G (1939) *Lancet* 1 1309
Lancet (1939) 1 653, 1330

Clinical and Laboratory Notes

CONGENITAL CYST OF ROUND LIGAMENT OF LIVER

By Reginald Lightwood M D Lond , F R C P
PHYSICIAN FOR CHILDREN ST MARY'S HOSPITAL PHYSICIAN TO OUT-PATIENTS THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET, LONDON, AND

L I Seton Campbell M A , M B Camb
LATE WANDER RESEARCH SCHOLAR AND REGISTRAR TO THE CHILDREN'S DEPARTMENT WESTMINSTER HOSPITAL

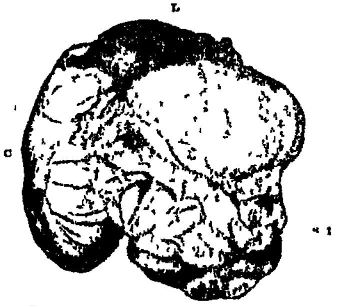
A cyst of the round ligament of the liver is among the rarest of abdominal tumours and the following case appears to be the third recorded in the English and American literature

CASE RECORD

The patient, the fifth child of healthy parents, was a male born at term Labour was normal, and the baby's weight at birth was 8¼ lb Shortly after birth he was cyanosed, and the abdomen was noticed to be enlarged The doctor in attendance diagnosing ascites tapped the abdomen and withdrew 120 c cm of straw-coloured fluid which was not examined When eight weeks old the patient developed œdema of the scrotum and of the legs, more severe on the right side Subsequently he was referred to one of us and examination revealed an elongated elastic tumour on the right side of the abdomen Hydronephrosis was suspected, and he was admitted to hospital

He was a small baby four months old, weighing 10 lb 6 oz., his colour was good, and there was no œdema On the right side of the abdomen an elastic swelling could be felt extending from behind the costal margin to the pelvis, it did not appear to move on respiration The urine contained a trace of albumin, many renal epithelial cells, and a few leucocytes, but no red cells or casts Culture gave a growth of *Bacterium coli* A blood count showed erythrocytes 3,750,000, hæmoglobin 67 per cent, and leucocytes 11,500 (polymorphs 24 per cent, lymphocytes 70 per cent.) No abnormal physical signs were found in other systems On intravenous pyelography the right renal calyces appeared normal A barium enema showed that the intestines were displaced to the left by a tumour on the right side of the abdomen

The infant died from an intercurrent infection ending in gastro-enteritis At autopsy both kidneys proved to be normal but a large sausage-shaped cyst was found lying inside the peritoneal cavity and lateral to the ascending colon to which it was attached by two friable adhesions The cyst appeared to be lying between two layers of the ligamentum teres, and the umbilical veins were stretched round it It contained an alkaline fluid with a specific gravity of 1 011, which was analysed as follows —



Post mortem specimen showing cyst of round ligament on the left side of the picture with the liver above (L = liver, C = cyst S I = small intestine)

Protein	1 25 per cent
Chlorides	present
Urea	99 mg per 100 c cm
Mucus	present – -
Diastase	absent
Deposit	scanty ; a few small cells, ? leucocytes

The inner surface of the cyst was smooth and covered with a little mucus No teeth, hair, or other evidence of teratoma were found A section showed a single layer of lining endothelium but no epithelium.

COMMENT

During life the diagnosis was in some doubt with the consensus of opinion in favour of a cystic kidney or a cyst in the mesentery An exploratory operation had been decided on when the child developed the fatal gastro-enteritis Hydronephrosis was suggested by the presence of renal epithelial cells in the urine and by the urinary infection but was excluded by pyelography Careful post-mortem dissection showed that the cyst was obviously in the ligamentum teres, and we have found only two records of similar cases.

Henderson (1909), *reporting the case of a male,* aged 41, from whom a cyst of the ligamentum teres was removed by W. J. Mayo, remarked that he had never previously heard of this condition, whereas cysts of the round ligament of the uterus were not uncommon.

Henderson's patient had developed symptoms eight years previously, when he said that, on attempting to stand up after stooping to lace his shoes, he was seized with a violent umbilical cramp. Soon after this an abdominal tumour was found by his physician, *and a laparotomy was advised but deferred.* The tumour gradually increased in size until it was as big as a human head. He made a successful recovery after its removal.

Wakeley and MacMyn (1931) reported a case of cyst of the ligamentum teres and also described two "*non-parasitic cysts of the liver,*" which they considered might have the same pathology though occupying a different position.

Their patient was a woman, aged 54, admitted for indigestion; four months previously she had noticed a lump in the upper part of her abdomen. She had a *round mass as big as a golf ball in the midpyloric* plane to the right of the middle line; it was only slightly movable and appeared to be fixed to the liver. At the operation Wakeley found a small thin-walled cyst occupying the upper end of the ligamentum teres. The patient made a good recovery. The cyst fluid was alkaline to litmus and contained a trace of albumin and urea, but no sugar, pseudomucin, or bile. The wall of the cyst was fibrous and contained some smooth muscle tissue; it had an endothelial lining.

The ligamentum teres is derived from the obliterated left umbilical vein of the fœtus Wakeley and MacMyn point out that a cyst could arise if the obliteration were partial instead of complete. An endothelial lining can secrete fluid, and cysts are known to be formed from such fœtal remains elsewhere—e g., in the round ligament of the uterus and in the funicular portion of the processus vaginalis

A cyst of the ligamentum teres can easily be mistaken for a parasitic cyst of the liver, cystic dilatation of the gall-bladder, a cystic or a solid tumour of the liver or the kidney, or a pancreatic cyst. Peritoneal and ovarian cysts might also simulate it. When suspected, its presence can be confirmed only by laparotomy, and *the right treatment is to remove the cyst to avoid* complications, such as hæmorrhage into the cyst, torsion, and strangulation. In our patient the condition simulated hydronephrosis, especially since there was a complicating urinary infection Possibly this infection was due to partial obstruction of the ureter on the affected side.

We wish to thank Dr. R J. V. Pulvertaft for the histological examination and for supplying us with a photograph of the specimen.

REFERENCES

Henderson, M S, *Ann Surg* (1909) 1, 550
Wakeley, C P G, and MacMyn, D J (1931) *Lancet*, 2, 675.

GLUTEAL AND FEMORAL CLONUS

By Stephen Erdesz, M.D

SENIOR NEUROLOGIST TO THE SAINT JOSEPH HOSPITAL, ORADEA, RUMANIA

ALTHOUGH patellar clonus and ankle clonus are well known in pyramidal-tract lesions, gluteal clonus and femoral clonus seem so far to have escaped observation Yet both are easily elicited and are of considerable value in localising higher pyramidal tract lesions.

In *gluteal clonus* there are seen successive rhythmical muscle spasms extending over the whole gluteal muscle group They are produced by a sudden poking of the gluteal muscles with the fingertip (fig 1). This clonus is, as it were, an extension of the better known gluteal reflex which consists of one single contraction of the muscles on stroking the gluteal region. The spinal segments concerned in both are lumbar 4 and 5. During the two years which have passed since my first observation, I have had numerous occasions to induce gluteal clonus. The following varieties are met with.

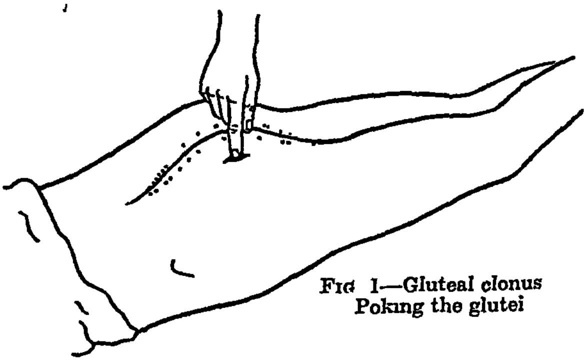


FIG 1—Gluteal clonus
Poking the glutei

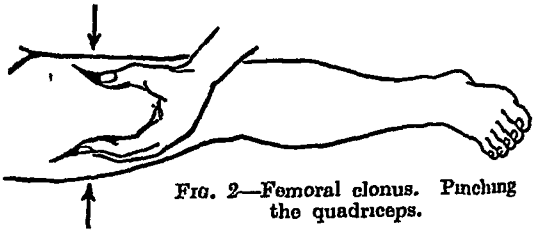


FIG. 2—Femoral clonus. Pinching the quadriceps.

(1) *Double sided, of equal intensity.* (2) On one side more vigorous, on the other side less expressed (3) Appearing only on one side

Femoral clonus consists of multiple, rhythmic twitchings in the quadriceps or hamstring muscles upon sudden pressure exerted by hand, or in less characteristic cases, evoked by a pinprick Sometimes the hamstring clonus is associated also with flexion of the knees (figs 2 and 3) The spinal segments concerned in femoral clonus are lumbar 5 and sacral 1.

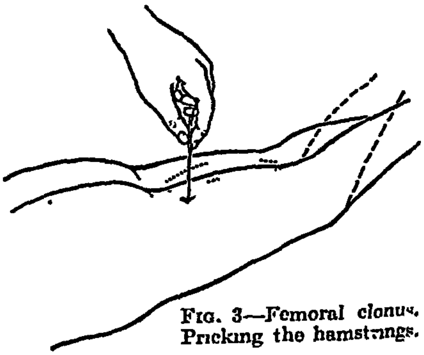


FIG. 3—Femoral clonus. Pricking the hamstrings.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF OTOLOGY

In his presidential address on Nov 3 Dr T Ritchie Rodger discussed

Syphilis as seen by the Aural Surgeon

He said that the surgeon should have the possibility of syphilis continually in mind Of 500 cases of syphilis seen by Dr Rodger in ten years the majority attended on account of throat and nose symptoms, 94 per cent gave a positive Wassermann reaction and the remainder showed equivocal signs which justified the diagnosis In hereditary syphilis the ear affections fall into two main classes, the early and the late, or, as French otologists have it, *précoce* and *tardive*, and these probably correspond to the secondary and tertiary stages of the disease The early forms, meningo-neuro-labyrinthitis and oto labyrinthitis, occur in the first two years of life and provide at least 25 per cent of the deaf mutes The late form begins most often between the ages of 8 and 16, and the patient does not lose his speech, but commonly speaks with the monotonous voice peculiar to the very deaf

In the acquired form of the disease a primary sore on the auricle is rare In the secondary stage condylomata may develop in the meatus, syphilides on the auricle, and oto labyrinthitis in the middle ear The most common ear affection at this stage, however, involves the perception apparatus, and is a meningo neuro-labyrinthitis, with particular involvement of one part or another of the nerve tract In the tertiary *stage there may be gummata or ulceration in the* meatus or on the auricle Middle ear involvement is rare, the most common ear condition again being neuro labyrinthitis Oto labyrinthitis or neuro labyrinthitis may be associated with tabes dorsalis.

Mr F W Watkyn-Thomas said that aural surgeons are too apt to overlook the possibility of syphilis being the cause of an aural condition He recalled the case of a man of about 40 who had been slightly deaf for some years, and then suddenly went almost completely deaf He thought at first that it was one of those cases of oto-sclerosis which flared up after a cold or some such trouble, but he discovered eventually that the man had had a positive Wassermann, and he improved to a certain extent under antisyphilitic treatment

Dr David Nabarro said he had seen remarkably few cases of deafness among the many congenital syphilitics he had examined, he had kept no record, but they would not be more than 10 out of 500 Sometimes in the course of treatment it would be stated that a syphilitic child had become deaf, but this might be due to other causes than nerve deafness —wax, middle ear catarrh or blockage in the eustachian tube

Mr T B Layton suggested that there were two groups of cases of deafness among congenital syphilitics in one the aural condition was manifested at the age of 20 or 21, when the only symptoms were deafness and keratitis, while in the other group the condition showed itself in childhood

Mr E D D Davis said he had the impression that nerve deafness was nothing like so common as optic atrophy in tabes and G P I

Mr G J F Elphick mentioned a case in which the diagnosis between arsenical injury to the labyrinth and a syphilitic lesion was in doubt. The patient had the most acute condition of secondary syphilis he had ever seen After some treatment his deafness became much worse, and it was ultimately found to be probably due to the arsenical treatment This was stopped temporarily, but the man was now totally deaf

Mr R G Macbeth recalled a case of a man of 40 who had been treated for congenital syphilis since he was 12 *Deafness was not very pronounced until he* was 20, when it became progressive and went on to almost complete loss of hearing A few years ago he showed a condition clinically indistinguishable from Menière's complex

Mr Scott Stevenson said he had suspected for a long time that many cases of nerve deafness were really syphilitic, and he wished that the procedure carried out by Jackson in Philadelphia were possible in this country—namely, that every patient entering the clinic had a Wassermann done as a routine

REVIEWS AND NOTICES OF BOOKS

Hospital Public Relations

By Alden B Mills, managing editor of the *Modern Hospital* Chicago Physicians' Record Company 1939 Pp 301 $3 75

Voluntary hospitals are inclined to hold themselves aloof from the general public, and hospital administrators have seldom tried to interpret to the public the functions of their hospitals This instructive book aims at telling how to set about scientifically constructive publicity With characteristic American comprehensiveness, its author says "A public relations program is a conscious, sincere, directed endeavor to create and strengthen contacts which contribute to the development of mutual understanding, good will and respect between an institution (or business) and its public A hospital must not expect the public to come to it the whole nor even half way Propaganda should try to help the public by informing them what the hospitals do and how they may judge the quality of hospital services Many of the problems of American hospitals are identical with our own, but in money making efforts—apart from contributory schemes—they are undoubtedly ahead of us In propaganda, "while it is important to harness the emotions, it is vital to satisfy the intellect In a short intensive fund raising campaign utilising the high pressure methods so common in the twenties, results were often achieved with appeals and claims that could not stand the light of critical analysis But the era of such campaigns seems to be drawing to a definite close Today people do not respond so readily to the 'tear-jerkers' and the 'sob sisters Hospitals are learning also that there are emotional recoils to purely sentimental appeals These recoils may do injury to the hospital that money cannot erase"

The public relations program as envisaged is not designed solely for obtaining gifts for the hospital Increased patronage, higher quality medical and nursing staff, improved relations with employees and a better standing with legislative groups are other goals Good hospital service is regarded as the very corner stone of a sound and effective public relations programme The cost of such a programme [illegible] represent 0·5 per cent of a hospital's total budget, but if 2·0 per cent is allowed the programme is so much the more useful.

Hospital Organization and Management

(3rd ed.) By Capt. J. E STONE, F.S.A.A., F.R.Econ.S, consultant on hospital finance, King Edward's Hospital Fund for London; secretary of the Birmingham Hospitals Centre London: Faber and Faber. 1939. Pp. 920. 31s. 6d

EVERY branch of knowledge has its standard works, and this most valuable book must rank as the authoritative basis of an applied science which though recent is nevertheless of the greatest importance in modern society. The author reveals a universality of wisdom—the hallmark of genius—although his basic ability was apparently in the realms of finance The book covers in detail the whole range of hospital technicalities from the structural to the dietetic No matter of the slightest importance is omitted and the relevant findings of the numerous commissions, Royal and otherwise, are summarised along with the effects of the Local Government Act of 1929.

The haphazard local provision and lack of unified and uniform organisation is emphasised throughout, while the author pleads for team work by hospitals of the same quality as that expected from the staffs which serve the institutions. He favours the system of regional planning and control A life-time of intensive experience and profound study has been made available to those who are engaged in securing the maximum efficiency of individual hospitals or groups of hospitals No hospital administrator should be without a copy of this book

Technique of Analytical Psychotherapy

By WILHELM STEKEL. London. John Lane, The Bodley Head. 1939. Pp. 408. 21s

IN his latest book Stekel gives a clear statement of his technique for short analysis lasting only three to four months Of particular interest is his advice on such practical points as the choice of patient, the conduct of the first interview, how active the analyst should be in explaining motives determining the patient's illness, when to demonstrate the existence of a transference situation to the patient, and so on All this is extremely useful to the student of psychotherapy, for whom very inadequate training facilities still exist either in this country or America, and who in most cases is forced to develop his own technique The pity is that as yet no one method of psychotherapeutic training meets with the approval of psychiatrists in general, and all, including Stekel's method, are open to criticism.

Stekel avoids the prolonged passive orthodox psychoanalytic method of free association, and in a comparatively short time claims to have an “intuitive” insight into the patient's condition, which justifies him in putting forward certain active interpretations To illustrate this “intuitive” method he gives numerous clinical histories, but the result is far from convincing as in the brief histories only such data as support the final interpretation are given Over and over again one comes across statements which entirely lack confirmation, as, for instance, in the chapter on “subsidiary transference” Stekel describes to what extent a patient will resist the formation of a transference for the analyst, and says “Afraid of the homosexual transference a man may fall in love with a girl and tie himself to her for life”—surely a very simple explanation for the analyst's failure to establish rapport with his patient Again in Chapter 23 he says, “The patient will regard the doctor as in the line of succession of those authorities with whom he has been in lifelong conflict and against whom his illness has been a treasured weapon “The old spirit of defiance is marshalled to vanquish the doctor and the treatment becomes an open or masked struggle in which the analyst, though victorious, must often simulate defeat” Thus Stekel claims that many patients who are in reality “cured” by the analysis do not give the credit to the analyst and only later relinquish their symptoms when treated by, say, a herbalist

But, although one may not agree with some of Stekel's deductions, the value of this book to psychotherapists is unquestionable; he is always stimulating, and discusses at length many of the problems which constantly arise in a psychotherapeutic practice This is one of the best and most informative books on the subject which has appeared.

Recent Advances in Anæsthesia and Analgesia

(3rd ed) By C LANGTON HEWER, M.B. Lond., D.A, anæsthetist and demonstrator of anæsthetics, St. Bartholomew's Hospital, London. London: J. and A Churchill. 1939. Pp. 333 15s.

IN the two years since the publication of the second edition of Dr. Hewer's admirable little work the most remarkable advances in anæsthesia have been on the academic rather than the practical side The institution of the diploma of anæsthetics by the Royal Colleges and the setting up of a chair of anæsthetics at Oxford are likely to have far-reaching effects compared with which variations in technique seem insignificant But one of these is noteworthy—viz, the increased popularity of Pentothal. Dr Hewer points out afresh that a 5 per cent. solution is preferable to the 10 per cent at first recommended because it is much less likely to cause irritation if, as often happens, some of the solution enters the tissues instead of going direct into the vein An inquiry in wards where many patients have received pentothal injections shows that a sore arm is no unusual phenomenon

The third edition of this book remains one of the most complete and carefully compiled accounts of modern anæsthetic principles and practice.

Everyman in Health and Sickness

By Dr HARRY ROBERTS and others London. J M Dent and Sons 1939. Pp. 739 6s

WHEN this book was first published in 1935 at 12s 6d we thought it good value for the money (*Lancet*, 1935, 2, 833) The publishers have now doubled its value by bringing out a new cheap edition at 6s

Pleasant Food for Diabetics

By A. SANDERS, formerly sister at St. George's Hospital, London London: Faber and Faber 1939. Pp. 138. 3s. 0d.

EXCELLENT though the recipes in this book appear to be, we fear that time must pass before the patient with diabetes follows the instructions on p 74 in which he kneads butter into Soya flour and adds as much marrow jam as he may desire, the basin, covered with greased paper, being then steamed for one hour An untimely appetite is stimulated as we read of coffee trifle served with whipped cream on top, asparagus served with melted butter; the English sausage which contains four rashers of streaky bacon, rather fat, a well-beaten egg, and half a pint of stock, or the banana cream in which the fruit is the last item in a rich formula But the mere reading of such suggestions is an encouragement to optimism, and we hope that the day is not far distant when this valuable little book may cheer the home of many a sufferer from diabetes.

THE LANCET

LONDON SATURDAY, NOVEMBER 11, 1939

EMPTIED SANATORIUMS

"Any consumptive requiring institutional treatment should receive it and accommodation is available for such treatment"—The Minister of Health replying to a question in the House of Commons on Oct 9

The effect of a state of war on tuberculosis is well known from past experience, and early in September the tuberculosis service in this country was fully alive to the difficulties that lay ahead if its powers were left unimpaired and its hands still untied For the past year the Joint Tuberculosis Council had been working out with the M O H tuberculosis group the organisation of a service for a time of national emergency It came therefore as a slap in the face to those who were devoting their lives to the eradication of the disease when they found that in the elaborate plans to protect the civil population from the risks of war the consumptive community seemed to have been overlooked This was the more remarkable because many hundreds of young adults with tuberculosis would be able, if their treatment was continued, ultimately to render useful service to the country Yet, while buses and ambulances transported children and expectant mothers, blind people and some cripples from the danger zones to places of safety, a third of the beds in sanatoria were emptied, and with a few exceptions these tuberculous people were sent home, there to decline and to pass on infection to their fellows A month ago one of our peripatetic correspondents told of an evacuated patient whom he had visited at his home—a municipal tenement flat with three main rooms, all very small, housing a family of eight, including four young and therefore vulnerable children The man had fibrocaseous phthisis, with active tubercle bacilli in the sputum As was well said in a letter to the *Times*, an infective case of pulmonary tuberculosis may in time cause as much harm as a bomb

The deputation to the Minister, of which an account was given on p 1001 last week, besought him to draw up a detailed plan for the release of more beds for tuberculous cases, particularly for those in the infective stage, and the Minister was able to assure them that about two-thirds of the 28 000 beds provided for the treatment of tuberculosis in England and Wales had, in fact, remained available throughout the early weeks of the war He admitted that the proportion varied in different parts of the country, and there is reason to believe that the sanatoriums serving industrial areas were the most drastically cleared whereas it was precisely in those areas that the need of segregation was most urgent and the risk greatest of releasing the patients into their home surroundings The Minister went on to tell the deputation that the closure of some of the smaller institutions was due to a misunderstanding which had been rectified, and he gave the assurance that as the hutted annexes to hospitals are completed more and more beds will be released for sanatorium treatment To this extent, then, the chief cause for immediate anxiety may have been allayed, although it must take time to live down the unfortunate impression that this is no time to be bothering overmuch with the phthisical But the deputation waxed bold and urged that the present is the time not for mere temporising but for a reconsideration of what the tuberculous service should be when the war comes to an end The last war gave a great impetus to residential treatment and heralded an era of new hopefulness with the use of collapse therapy and various biochemical agents during the patient's period of segregation, there is, however, a widespread feeling that the remote results were not commensurate with the expenditure, or even with the effort put out, for the reason that aftercare and rehabilitation were neglected Only in a few places was there any effective organisation for finding suitable employment under proper conditions for ex-sanatorium patients

Good can only come out of the evil which has befallen us, as a correspondent points out, if it leads to the planning of a comprehensive scheme in which diagnosis, treatment and aftercare are placed on equal footing, when it will be seen that, whereas adequate treatment can be provided by a local authority, any scheme for rehabilitation to be effective must rest on a national basis The three national organisations with the word tuberculosis in their titles have all done valuable work, limited as yet to *particular spheres of action* Emergency has brought them together, and while each may do well to retain its individuality, they should arrange among themselves that nothing is neglected The liaison committee should get to work at once

DISSECTING ANEURYSM

Autopsies performed on supposed cases of coronary occlusion occasionally reveal a dissecting aneurysm instead, and these aneurysms are certainly not as rare as is supposed Spontaneous rupture of the aorta may be met with as often as once in 500 autopsies, and is much commoner than rupture of the heart The underlying cause is degeneration of the media, but atheroma plays scarcely any part and syphilis plays none The dissection usually starts in the ascending arch of the aorta The blood may pass downwards to the pericardial sac or any distance along the distal part of the aorta to the iliac artery On another page Dr Gardner, Dr Galbraith and Dr Hardwick describe the case of a boy of 15 who died as the result of what is probably the largest dissecting aneurysm on record Dissection affected the whole aorta and its main branches, and the process extended into the lower limbs as far as the popliteal artery on the left side and the posterior tibial in the lower third of the leg on the right side There was also dissection of the pulmonary artery and its right main branch. Hitherto concomitant dissection of the pulmonary artery and of the aorta has not been described Dissection of the pulmonary artery alone is very rare The right coronary artery was dissected, and this is probably unique.

Men get dissecting aneurysms about twice as often as women, and they are rare under the age of 40. The patients are usually in good health, and a large majority have high blood-pressure The onset may be precipitated by physical exertion, such as lifting a heavy weight or straining at stool. The pain is of excruciating intensity and the patient may describe it as rending or tearing. It may be in the precordium, in the neck, in the back of the chest, in the epigastrium, or in the lumbar region. If it starts in front it soon spreads to the back and vice versa, or it may extend from the chest to the abdomen and down to the legs. When a wide, progressive spread of pain can be distinguished this symptom is most striking The pain is usually accompanied by collapse, pallor, profuse sweating, restlessness, and sometimes syncope. As a result the blood-pressure may fall. Vomiting is common and may be a dominant symptom. Cyanosis and venous engorgement of the face and neck may come about from pressure on the great veins in the thorax. Pressure on the œsophagus may cause dysphagia Dullness and loss of breath sounds may be found at the left base, owing to effusion in the left pleural sac or to collapse of the left lower lobe. The pulse may be completely lost at one wrist, but more significant is the loss of the pulses in the legs. This happens so often that it is one of the most characteristic findings. After a time the pulses may return, as in the case reported by Dr East on p 1017 With the failure of the circulation the legs become cold and blue and the limbs flaccid; few patients live long enough to develop gangrene The power of movement is lost and the tendon reflexes disappear. There is usually slight fever and leucocytosis up to 20,000 or more. In radiograms the aneurysm may appear as a great bowed shadow in the left side of the chest Death is usually due to rupture of the aneurysm into the pericardial sac or into the left pleural cavity Probably four-fifths of patients die in the first day or two, but some may survive.

Dr East's case was that of a woman who first came under observation when aged 43 for high blood-pressure The diagnosis of dissecting aneurysm was made during life and the patient survived for the remarkably long period of 5 years. Diagnosis is often difficult, especially in cases with little or no pain or with vomiting which masks the other symptoms When the pain is epigastric some surgical emergency may be simulated, but there is usually little or no abdominal rigidity Careful examination of the peripheral circulation will generally make the diagnosis clear. If the aneurysm does not rupture there is always a chance of healing, and in the hope that this may happen patients must be treated by absolute rest and full doses of morphia.

INDUSTRIAL HEALTH UNDER WAR CONDITIONS

The report published twenty years ago by the Health of Munition Workers Committee makes disquieting reading today, for it revealed some of the mistakes made in the last war that may well be repeated in this. Set up in 1915 to investigate some of the factors that threatened the supply of munitions, the general validity of its findings remains unchallenged. Sir Duncan Wilson,[1] the chief inspector of factories, warns us that in wartime "there will be many new factors all tending to increase the chances of factory accidents There is dilution of skilled labour by unskilled There are longer hours of work and intensified production; there is probably a greater amount of monotonous work." But more is at stake than a greater risk of accidents War conditions produce a cumulative state of chronic industrial fatigue, with its invariable accompaniments—industrial inefficiency and increased morbidity as well as a higher accident-rate. The last war showed that the onset of industrial fatigue is manifested first by a gradual deterioration in the quantity and quality of the output of work per hour, then by a rise in the incidence of accidents and of short-period illnesses; and finally by a serious increase in more disabling illnesses

In war there is an understandable tendency to take only a hand-to-mouth view of such things as the relation of production to health. It is so fatally easy to remember the need for greater immediate production and to forget the price that must be paid for it Yet it is here that a long-term policy is most essential If we are planning for a three-years war we ought now to set about the task of preventing fatigue before it appears Some of the recommendations of the Health of Munition Workers Committee have already been incorporated in both legislation and factory practice They found that long overtime and uncontrolled night-work are uneconomic and may be disastrous to health They laid stress also on the importance of further research into speeds of work, working hours, night-work and other conditions out of which fatigue seemed to arise Much of this research has been done but much has still to be undertaken, and it seems likely to be curtailed rather than stimulated by the war.

In 1917 the Industrial Fatigue (now Health) Research Board was constituted to carry on the work of the original committee, and the practical value of what it has since done needs no emphasis It will be a catastrophe if its workers are now scattered to other tasks and its work comes to an end. The evil effects of uncontrolled overtime and unlimited night-work are not confined to munition factories, the man-power of the nation can only be used to the best advantage if the workpeople's health is watched over in *all* our industries A tendency is already apparent to disregard the more important conclusions of the Munitions Committee and the Industrial Health Research Board and to revert to the bad old ways. If this tendency is to be checked not only must the existing board press on its research but a central body with local subcommittees should also be established to watch for the early evidences of industrial fatigue and to see that the knowledge we have of its causation is put into practice throughout the country. The new committee should be representative of the universities, the Ministries of Health and Labour, the industrial research bodies, employers and employed, the friendly societies, and the medical profession, more particularly the general practitioners who are in close touch with the workpeople themselves. With such a committee working from an early stage in this war it should be possible to avoid much of the waste of labour that past experience shows will otherwise be inevitable.

---

[1] *Bull. Indust Safety*, September, 1939, p 69

THE CLINICIAN AND PSYCHO-ANALYSIS

During the last ten years a great deal of psycho-analytical literature has been published throughout the world, particularly in America. Much of it is of undoubted interest to practising analysts, but the great part is purely theoretical—a superstructure of theory built on theory. Compared with Freud's work, the welter of writing on his subject is characterised by a paucity of scientific material based on sound clinical observation. That analysis does not lend itself to scientific research is no excuse. Psycho-analysis was born of the scientific method in its most classical style. Freud was nothing if not a sound clinician.

In many quarters there is much dissatisfaction with Freud's primary theories. Dr Karen Horney,[1] after fifteen years practice of the technique, has published her doubts. Starting with an exposition of the fundamentals of analysis, she proceeds to discuss libido theory, the Œdipus complex, the death instinct, the Ego and Id, the Super-ego and the other Freudian corner-stones. Her work shows a common-sense view, and sheds refreshing light in every chapter. For example, when discussing penis envy the author says "it would require tremendous evidence to make it plausible that woman, physically built for specifically female functions, should be psychically determined by a wish for the attributes of the other sex." But like most non-analytical psychiatrists, Dr Horney has accepted the main truth of Freudian doctrine. She calls for the redistribution of emphasis on various ætiological factors. Great emphasis should be laid, in her opinion, on the importance of culture as a determining factor in mental mechanisms. Freud, she alleges, failed to see this because he was preoccupied with instinctual trends which are only modified by individual environment. His patients were largely middle-class neurotics, a type characterised by great potential hostility, by much more readiness and capacity for hate than for love, by emotional isolation, by a tendency to be egocentric, ready to withdraw, acquisitive, entangled in problems concerning possession and prestige. Freud failed to realise that these trends were brought about by conditions of a specific social structure, and ascribed egocentricity to narcissism, hostility to a destruction instinct, and acquisitiveness to oral libido. While much of this seems valid argument, these vital problems cannot be solved by theoretical speculation, but only by a return to clinical observation and the scientific method. The time has come to abandon armchair philosophising. There is an immense work to be done in this field, both by fresh observation and by the method of comparison with standardised controls. The difficulties are also immense, but we do not believe they are insurmountable.

TO OUR READERS

Ten weeks ago difficulties of publication arising out of the international crisis made it necessary to print The Lancet in the country and to rearrange its contents. The Proprietors then expressed to subscribers their regret at the omission of some of the paper's usual features. Since then the ground has been made good, and with willing help from some old and many new friends we have been able to keep our readers in touch with medicine in what may be epitomised as a brave new world. It has been a time of economic stress for various groups of subscribers, especially those who have exchanged private practice for whole-time service. The Proprietors are unwilling that this should stand in the way of their continuing to take the paper and they have agreed to offer The Lancet for the duration of the war at a guinea a year to doctors in H.M. Forces or working full-time in the Emergency Medical Service. In the hope of bringing The Lancet also within the reach of all who are now at the outset of a medical career the same offer is made to those who have been qualified not longer than a year. We would also remind medical students that until they qualify their year's subscription is only half a guinea.

The Lancet 100 Years Ago

Nov. 9, 1839, p. 253.

From a leading article on a projected "sanatorium" for paying patients.

What is an Hospital? A place where the sick are supplied with diet, medicines, nursing, the appliances of medical art and medical skill at a *cheaper* rate than they could be supplied at home: it is a place, also, where all the diseases, sicknesses, sufferings, and infirmities of humanity are concentrated; where the patients, dragged from home and the cheering contiguity of health, are laid side by side in long cheerless wards, and breathe a *fatal* atmosphere from night to morning, and morning to night again: it is a gloomy garden in which the withering, cankered, blasted, blighted plants are collected—shed their flowers, leaves, and decaying branches—mingle their exhalations—and drag each other to a kindred dust. Wordsworth has described, with his accustomed simplicity, the feelings of the poor, who are driven to Hospitals, in "The Female Vagrant":—

> Borne to an Hospital, I lay with brain
> Drowsy and weak, and shattered memory;
> I heard my neighbours in their beds complain
> Of many things which never troubled me—
> Of feet still bustling round with busy glee,
> Of looks where common kindness had no part,
> Of service done with careless cruelty,
> Fretting the fever round the languid heart,
> And groans which, as they said, would make a dead man start.

---

[1] Horney, K. New Ways in Psycho-analysis. London: Kegan Paul, Trench, Trübner and Co. 1939. Pp. 313. 10s. 6d.

ANNOTATIONS

THE GIRL'S RATION

UNTIL fairly lately it has been assumed that the food requirements of boys and girls over 14 are those of adults of the same sex This assumption traverses common sense and crude observation. All boys between 14 and 18 and most girls between 13 and 17 eat, or appear to eat, more than their fathers These were, moreover, the observations of Holt and Fales,[1] published as long ago as 1921 The recorded intakes of 100 children of educated parents living either in New York or in New England suggested that boys at 16 and girls at 14 to 15 might well be allowed 1000 calories more than their fathers and mothers respectively. The boys should get 4000 and the girls 3300 calories. Adolescence is the time of most rapid growth, of increased basal metabolic rate, of especial thyroid and pituitary activity, and of a nervous instability which often shows itself in increased muscular activity and irritability. Not only extra calories are needed but also extra first-class protein, extra calcium and phosphorus for bone growth, extra iron for red blood corpuscles, and extra vitamins.

The greater needs of adolescents are recognised by the health committee of the League of Nations,[2] who recommend a total daily protein intake of 2·5 g per kg. body-weight between the ages of 12 and 15 and of 2 g. per kg. between 15 and 17, against 1 g. per kg. body-weight for adults. The committee's report states that in the growing period animal protein should form a large proportion of the total protein In other words adolescents must not be treated as adults as regards either total or first-class protein The same is true of calories. On the committee's scale a boy should get up to 1200 calories and a girl up to 600 calories more than an adult *male*

This view has been partially accepted by the Ministry of Food. We hear that extra rations are to be given to adolescent boys, but girls are apparently to have no more than the ration for adult females. If that is true, and we hope that it is not, the Ministry of Food is flying in the teeth of the best opinion in dietetics And if they argue that boys who have just left school are often doing hard manual labour, they should also remember that any weakling male can beget a baby, but it takes a healthy well-made mother to gestate, bear and suckle one

AN UNPLEASANT NECESSITY

MORE than one lesson can be drawn from the recent publication of the white paper on conditions in German concentration camps before the war. It is probable that many people did not know the degree of systematised cruelty and degradation inflicted upon helpless men and women long after Nazi power had been firmly established; and inasmuch as one of our aims, perhaps our chief aim, in this war is the saving of Europe from a system of government that claims the right to use unlimited brutality in silencing every opposing voice, the story of the internment camps may legitimately be held out as an example of the evil principles against which we are fighting. Yet wars are not fought in the chilly atmosphere of reason, and this rational function of the white paper is feeble in comparison with its emotional appeal. Such an appeal is necessary, repugnant as it may be to make the frank admission, for among the degradations of ideals necessitated by war is the need to cultivate the warlike emotions Hitler himself deliberately, and in time of peace, forced such cultivation upon his people, and now, willy-nilly, we must follow suit or suffer under a grievous handicap; and the recognition of this fact is not a cynical admission but a hard necessity if we are to guard against some of its more evil results The strongest warlike emotions are fear and hatred, and to their four-year-long accumulation we can justly attribute the universally recognised mistakes of 1919, which have played their part in bringing about the events of 1939. The picture called up by reading the white paper stimulates, and it is right that it should stimulate, our determination to fight; but when the war progresses, and misfortunes and reverses stir us to greater effort (as they have done in the past), we may hope there will remain among our leaders, political and intellectual, an understanding that the warlike emotions are not only an unpleasant but a dangerous necessity.

PYELONEPHRITIS AND HYPERTENSION

WHILE Bright in his original paper described a disease of varied ætiology leading to renal failure, pathologists and clinicians in the last hundred years have tried to devise a satisfactory classification of renal disease. Weiss and Parker[1] point out that pyelonephritis is not considered as a form of Bright's disease, although it deserves to be, for it can lead to renal failure, vascular lesions and arterial hypertension. The arbitrary separation of kidney diseases into medical and surgical types has delayed progress, since the structural characteristics of pyelonephritis are essentially the same, regardless of whether the infection is hæmatogenous (descending), urogenous (ascending) or lymphatic in origin. Indeed pyelitis hardly ever exists without pyelonephritis. The clinical course of pyelonephritis is very variable The renal infection often heals in a short time, but it may persist for years, during which activity may be continuous or recurrent. The functional capacity of the kidney thus may show considerable fluctuation during the course of the disease Weiss and Parker found in their careful study of 100 selected cases that pyelonephritis is often associated with arterial hypertension, and they even estimate that the condition is responsible for at least 15–20 per cent. of cases of malignant hypertension The severe obliterative vascular lesions found in pyelonephritis are similar to those in malignant nephrosclerosis; but in chronic pyelonephritis they are restricted mainly to the kidneys—in unilateral disease predominantly to the kidney affected—whereas in malignant nephrosclerosis they are generalised. The hypertension of pyelonephritis is often accompanied by nervous symptoms, including cerebral encephalopathy, neuroretinitis and high cerebrospinal pressure, and by toxæmia of pregnancy, and it commonly leads to left ventricular failure with attacks of cardiac asthma. But organic diseases of the cerebral and coronary vessels are rarely present, in contrast to states of chronic hypertension and malignant nephrosclerosis of other origin. Thus in the hypertension of pyelonephritis the symptoms are those of toxæmia (uræmia) rather than those that arise from vascular changes in brain and heart when the arterio- and arteriolo-sclerosis is widespread throughout the body. In pyelonephritis the sequence of events from the initial renal infection to the terminal stage of severe hypertension can be traced fairly clearly, and this is the one renal disease that can be treated effectively in the early stages.

---

[1] Holt, L E, and Fales, H. L, *Amer J. Dis Child* 1921, 11, 1.
[2] The Problem of Nutrition, vol ii, Geneva, 1936

[1] Weiss, S, and Parker, F., Jun, *Medicine*, 1939, 18, 221.

IMMUNITY TO INSECT BITES

We are all familiar with the experienced resident from the tropics whom mosquitoes will not touch, and with the lucky man who never suffers from the attacks of fleas. There is a small amount of evidence that certain blood sucking insects do feed less readily on some individuals than on others, but in the vast majority of cases when people claim that they are not attacked by insects they really mean that they are insensitive to the bites and therefore fail to perceive them. It is not uncommon to observe a mosquito drinking its fill on one of these "immunes" at the very moment that he is proclaiming his immunity. That people vary in their response to bites is certain. The late Prof. A. E. Boycott showed that people not previously attacked by fleas of a given species often show at first no reaction at all, soon they become sensitised and suffer much irritation, finally they may become desensitised and hence "immune." Old residents in San Francisco, a region that abounds in fleas, no longer suffer from their bites, whereas newcomers suffer intensely. Recently, some American investigators[1] have shown that extracts prepared from the local fleas of this district produce an intense reaction when injected intradermally into the sensitive people, but almost no reaction in the immunes. They have gone further, and by repeated doses of the antigen have reduced the response in the former group. Some of the patients who had acquired immunity in this way "volunteered the information that they could now go with impunity to the movies." All these results bear out what was already known about sensitivity to insect bites. But when the authors state that such induced immunity against bites would be an extremely valuable adjunct in the control of insect-borne diseases they are on less certain ground. It might indeed be argued that to be unaware of the attacks of insects will positively increase the menace of the diseases which they carry.

TWINNING

Our United States correspondent draws attention to an interesting difference between monozygotic and dizygotic twins. Whereas the relative frequency of monozygotic twin births remains fairly steady, that of dizygotic twinning steadily increases with the order of birth. Dizygotic twinning in sixth and later births taken together is about three times as frequent as in first births. Dahlberg and others have already drawn attention to this fact, and to the other facts noted by Yerushalmy and Sheerar. It is perhaps a pity that these authors have made use of an empirical method of calculating the relative frequency of the two types of twins when a satisfactory a priori method, Weinberg's differential method, is available. From their provisional notes, it would seem that the authors are not well acquainted with the large European literature on the subject of twinning.

The finding strongly suggests that there is an important environmental factor in the ætiology of dizygotic twinning which is not also involved in monozygotic twinning. Yet two puzzles remain. On the one hand, the most convincing evidence in favour of a hereditary determination of twinning has been found in investigations of the families of dizygotic twins. On the other hand, Dahlberg, Curtius, von Verschuer, and others found themselves compelled to take the view that if there is a hereditary factor for twinning, it involves a tendency to the production of both types of twins. Some years ago it was reported from Japan that the incidence of monozygotic twinning in that country was about the same as in the Occident, but that the frequency of dizygotic twinning was much lower. Difficult and important problems are facing us here, and the work of Yerushalmy and Sheerar represents an additional fragment of evidence confirmatory of the evidence already accumulated. We shall have to await a solution until we have really large numbers capable of statistical treatment, such as can only be provided by the adequately detailed census figures of a large population and by further family investigations on a corresponding scale. Work on twinning provides an excellent illustration of the difficulties of studying heredity in human material. Unlike investigations into the heredity of disease and morbid phenomena, however, it is possible that our work in this field might be to some extent lightened by breeding experiments with animals.

SWIMMING EAR

It is usual at this time of the year for otologists to take stock of the seasonal crop of "swimming ears." The poor weather of the early part of this summer did not encourage bathers, and the warm sunshine of last month was dissipated in the political storms. The yield has consequently been small. The reasons for the association of bathing and aural infection are, in general, not well understood either by the practitioner or the layman, and otologists have not always laid sufficient stress on them. Taylor[1] has given a brief account of the more important factors, emphasising man's lack of biological adaptation for an aquatic existence. The key to the problem lies in the mucous membrane of the nose and nasopharynx. This is of the ciliated columnar type adapted to cleansing inspired air of both inorganic and organic impurities. Mucus is secreted by special cells in the epithelial layer and forms the medium in which the cilia work. The mucus contains anti-bacterial substances and maintains a relatively constant hydrogen-ion concentration for optimum ciliary activity.[2] In aquatic animals there is usually a mechanism for closing the anterior nares or some other device for preventing water coming into contact with the respiratory mucous membrane. In man no such developmental characteristics exist. Water is thus able to enter the nose and wash away the protective mucus layer, damaging the lining membrane and leaving it devitalised and in no condition to resist infection. To avoid this, swimmers should be taught to exhale through the nose while the head is submerged and to inhale through the mouth while the head is above water. The positive pressure thus maintained in the nasal cavities will prevent the entry of water. All good swimming coaches teach this, but the trick is not easily learned and bad habits soon creep in. Modern swimming strokes especially demand a good breathing technique. For the same reason, jumping into water feet first should be discouraged.

The infecting organisms are either pathogenic bacteria normally present in the upper respiratory tract or foreign bacteria which gain a foothold when the local defences are weakened. The rapid spread into the middle ear is possibly due to damage of larger areas of nasal mucous membrane at a time, and this is perhaps also the reason why the infection is so often severe. In addition, man is not equipped for prolonged immersion in water, having no fur or fatty covering to prevent lowering of the body temperature, and such cooling reduces the resistance to infection Care should therefore be taken not to stay too long in cold water nor to remain inactive whilst out of the water unless exposed to the warm rays of the sun

---

[1] Cherney, L. S., Wheeler, C. M., and Reed, A. C. Amer. J. trop. Med. 1939, 19, 3[illegible]

[1] Taylor, H. M. J. Amer. med. Ass. [illegible] 431

[2] Hill, [illegible] Arch. Otolaryng. 1933, 18, [illegible]

Otitis externa or furunculosis may result from maceration of the skin of the external meatus by prolonged contact with water. Aquatic animals are again specially adapted to prevent this happening, for they can close the external orifice of the meatus. In man, as a substitute, ear plugs of rubber or oiled wool or cotton may be used Thus quite simple prophylactic measures should result in a useful diminution in the incidence of the "swimming ear" once it is recognised how badly man is adapted to an aquatic environment.

LUNG ABSCESS AND M. & B. 693

WHEN the fever of lobar pneumonia has been aborted or shortened by serum or M. & B. 693, resolution usually goes on normally in the consolidated tissue, as would be expected when once exudate has filled the alveolar spaces But certain workers, notably Anderson and his colleagues,[1] have observed an unduly high incidence of delayed resolution among patients treated with M. & B. 693 One possible cause is lung abscess, which, ordinarily a rare complication of lobar pneumonia, has seemed more common since the new chemotherapy was introduced. In a fair proportion of fatal cases of lobar pneumonia the lungs show considerable necrosis of tissue, which had the patient lived would have become an abscess, and it seems likely that M & B. 693, by helping the patient to overcome and the lung to circumscribe the infection, will present us with a number of lung abscesses in live patients instead of the "bags of pus" we have been accustomed to see in dead ones Serotherapy has had similar effects—for example, Harrington[2] noted 3 instances of lung abscess among 98 cases of lobar pneumonia treated with type I or II pneumococcus antiserum

M & B 693 is known to be more or less ineffective in the presence of pus, probably because of the antagonistic effect of proteolytic products on the drug, so that it cannot be expected to influence the course of a lung abscess once necrosis of tissue has taken place. The need is for careful clinical observation of the patient during the stage of resolution—aided by radiography where there is delay, for the symptoms and signs of lung abscess may be equivocal—and the avoidance of over-hasty convalescence when consolidation persists.

WHY IS THE PALE CHILD PALE?

PERSISTENT pallor in children may arise from a variety of causes, some of which are quite consistent with health It may be a family characteristic—a mere unusual arrangement of the superficial capillaries —or may be part of a general poor vasomotor tone, or due to bad housing conditions with insufficient sunlight. But the layman's belief that all pale children are anæmic dies hard, and many spend their childhood alternating between Parrish's Food and syrup of figs in consequence In the school medical service the confusion is particularly troublesome, for the inspecting officer cannot check the layman's diagnosis without a hæmoglobin estimation, for which there is little time. Lately, Dr. Henderson and Dr Gilchrist[1] found that of 134 children sent to school clinics by parents, teachers and school medical inspectors because of alleged anæmia only 7 had a hæmoglobin level of less than 80 per cent (Sahli) and only 29 had less than 85 per cent., which is usually accepted as normal on this scale Dr. Henderson also investigated 528 children attending the Leyton minor-ailment clinics, all selected because of the pallor of their skin and mucous membranes, and found that only 124 (23 5 per cent) had a hæmoglobin of less than 85 per cent Gilchrist suggests, however, that 90 per cent Sahli should be taken as the normal, for she observed that the hæmoglobin of children with less than this figure could be raised by full doses of iron On this basis some 40 per cent of these children were genuinely anæmic The part played by undernutrition in the anæmic ones seems doubtful Henderson says that the highest incidence of anæmia in his selected group was among the undernourished, though of these only 29 per cent had a hæmoglobin of less than 85 per cent. Gilchrist, on the other hand, remarks "it was surprising at times to find that a badly undernourished child, well below average height and weight, flabby and with poor muscle tone, had a hæmoglobin index of even 100 per cent" Perhaps in such children the vascular musculature is as flabby as the skeletal. Whatever the explanation of the anomalous cases, their frequency does suggest that an opportunity should be found for at least one hæmoglobin estimation during the schooldays of every pale child, if only to save many from years of unnecessary coddling and useless medication.

MIDWIVES AND THEIR BOARD

LIKE the General Medical Council the Central Midwives Board exists for the protection of the public rather than the furtherance of professional interest The annual report of the C.M.B which is before us illustrates how little the parturient woman needs to be protected from Sarah Gamp's heirs and assigns During the year ended March 31, 1939, only eleven midwives were charged with malpractice, negligence or misconduct, and of these it was seen fit to inhibit only one woman from her profession Three were cautioned, one severely censured, in four cases sentence was postponed, and in the other two no action was taken. And on that date there were 62,905 women on the roll Of course a large proportion of them are not in practice, but the roll is becoming more real for 3273 live names were added to it and 6822 removed, as a registered letter failed to produce evidence of professional activity The number of midwives practising during 1938 was 16,761, or a drop of 733 on the previous year Only 74 of these, or 0 4 per cent, were untrained The inconvenience of an inflated roll has now come to such a pass that the board has decided to publish annually another list, being a roll of practising midwives, the first issue of which will relate to the years 1937–38 It was at one time doubtful what effect the new training rules would have on entries and it is good to note that the number of pupil-midwives passing the training schools in 1937 was the highest on record. There are signs indeed that a normal state may be reached earlier than was at one time expected On July 6 there were 2262 names on the register of pupils At the same time the post-certificate instruction of the practising midwife is taking shape; she is to attend a course once in seven years, and the board has approved for the purpose a small number of institutions, serving large and populous areas Each of these will hold ten courses a year, admitting about ten midwives to each course The report records the increasing use of analgesics by midwives, ten institutions were approved for giving instructions in the administration of gas-and air analgesia, the total number now being 56 Six kinds of apparatus have been approved All the safeguards recommended by *the Royal College of Obstetricians and Gynæcologists* have been incorporated in the rules, which still require the presence of a second person in the room while the analgesic is being given, in addition to the midwife in charge of the case The report also tells of a register of women willing in a national emergency to do midwifery either near home or at a distance The second part of this register will make a central pool on which a needy local authority can call The report, although still difficult for the uninitiated to follow, is far more detailed and readable than ever before, and is now almost a human document This may perhaps be correlated with the appointment of an assistant secretary who took up his duties in January last

---

[1] Anderson, T, et al *Lancet*, Oct 7, 1939, p 776

[2] Harrington, A. W., *Trans R med.-chir Soc Glasg* 1933, 27, 148

[1] Henderson, P., and Gilchrist, M, *Med. Off.* Oct. 21, 1939, p 163

THE GALL-STONE DISEASE

AUTOPSY evidence gives ground for thinking that the incidence of gall-stones may vary according to race diet and occupation as it certainly varies according *to age and sex But there are few if any published* series in which the material is adequately subdivided, and valid estimates of incidence in the general population can hardly be based on series where the presence of stones might be correlated in a number of ways with the conditions that brought the body to the post-mortem room On the clinical side, it is believed that gall stones like renal stones can reflexly derange digestion But the majority of carriers seem to suffer little inconvenience from their stones, and on the analogy of gastritis or colitis it can be argued that cholecystitis is the result of digestive dysfunction and not the cause of it

When it comes to assessing the results of treatment, our statistical ignorance is profound Gall-bladder disease is diagnosed or suspected in cases of colic and of active cholecystitis This material is diluted with a variable percentage of cases of indigestion associated with stone or with a gall bladder which fails to fill with radio opaque dye The degree of dilution depends among other things on the attitude of the general practitioner and outpatient consultant, the nature of the available X ray plant and the keenness of the radiologist Gall stone patients are a selected group from the first and further selection occurs with subdivision into cases for radical and conservative treatment Age sex, obesity, concomitant disease, severity of symptoms, and willingness to submit to operation all influence the decision, and even in a single hospital the policy adopted can rarely be uniform At the cost of an unpleasant operation of which the mortality rises rapidly with age surgery gives a higher percentage of lastingly symptom free patients But as Lhnmark[1] of Uppsala points out in one of the best statistical studies that have yet appeared operation or no operation, more than half the patients remain free from serious symptoms, and a follow up of at least five years is needed before the relapse rate can be determined and the two groups compared During this time many patients will die from unrelated disease especially in the older and less healthy group treated conservatively The problem is left of deciding whether the policy adopted has been too radical or too conservative Lhnmark's survey seemed to be the only one where over 90 per cent of a large number of cases of gall stones consistently treated has been followed up for over five years and analysed by modern statistical methods The attitude he takes up is a strictly conservative one. The best treatment however, would be prevention and there is an obvious need for more detailed statistics on the incidence of gall stones, with and without symptoms

INTESTINAL OBSTRUCTION IN BABIES

BOWEL obstruction in the newborn has always been a source of interest to clinician, pathologist and embryologist alike, to the surgeon it has the added interest that his early recognition and prompt treatment *of the condition may be life-saving It is one of the* rarer varieties of pediatrics, however, and Dr E M Miller[1] of Chicago has been fortunate in having 14 cases under his care during the past 13 years He divides the causes of obstruction, which is nearly always due to an error in development, into two main groups—intrinsic and extrinsic In the former the embryological error is an interruption in continuity of the bowel—e.g, a septum—and in the latter it is a band of peritoneum, or perhaps an anomaly of rotation Of Miller's 14 cases, 6 were ileal or jejunal, and all these died after operation 8 were duodenal, and 4 of these survived The high mortality in low obstruction is to be expected, for the infant is always desperately ill, and the technical difficulties of bowel anastomosis are great Miller can find only 3 records of babies with low obstruction who survived operation In each a lateral short circuit was made, combined in one case with ileostomy Ileostomy alone is useless *The better results in duodenal obstruction depend on* the greater ease of diagnosis, the more aseptic field of operation, and the fewer technical difficulties to be overcome In 16 successful cases that have been published the operation most often performed was a posterior or anterior gastroenterostomy Duodeno jejunostomy was done in 3, and in 1 case a fibrous diaphragm 2 mm thick was removed from inside the duodenum by diathermy In Miller's 4 cases of duodenal obstruction which survived operation, the cause in 3 was intrinsic, and a short circuiting operation was performed In 1 the cause was a volvulus, and it was necessary only to untwist the pedicle *Miller makes a strong plea for early diagnosis, and* here he sets much value on the association of bilious vomiting with visible peristalsis In ileal cases the vomiting soon becomes paramount and dehydration is rapid In some cases X rays may be helpful preceded by a barium meal if the obstruction appears to be high, or a barium enema if it is thought to be low

---

The 25th annual report of the Board of Control which appears this week surveys the last complete year before the international situation began to make things difficult Actually at the end of 1938 the position in the mental hospitals was better than the board had anticipated in its previous report The increase of patients during the year was 1644 against an average of 1924 for the five year period At the same time the accommodation was increased by 2250 beds thus reducing the aggregate overcrowding below the 3000 figure The improvement was even greater than appears, *for the death rate fell from 7 to 6 5 per* cent and an increase of 515 in direct admissions was more than counterbalanced by an increase of 1028 in the discharges and departures Encouraging also was an increase during the year of voluntary admissions to the number of 1237

---

[1] Lhnmark [illegible] *Acta chir scand* 19[illegible] 82 suppl [illegible]

[1] *Ann Surg* October 19[illegible]

THE NEW ENDOCRINOLOGY

A series of articles by Prof. E. C. DODDS, F.R.C.P., *director of the Courtauld institute of biochemistry at the Middlesex Hospital, based on lectures delivered at the British Postgraduate Medical School*

VI—DIAGNOSTIC VALUE OF URINARY HORMONES

BOTH œstrogenic and androgenic hormones can be detected in the urine, but it has not been found possible to obtain progesterone, except in minute quantities, from this source. Pregnanediol, on the other hand, can be easily obtained, and it is probably the excreted form of progesterone, though it is inactive biologically. The excreted form of a hormone is always less active than the hormone itself.

The amount of sex hormones excreted in the urine bears no definite relation to the amount of hormones being secreted. The quantity actually produced in the body or supplied by food is unknown, as is the storage of hormones in the body. By the ordinary methods of extraction only 3–12 per cent. of œstrogenic hormone administered can be recovered; the recovery of gonadotrophic hormones is believed to be less than 20 per cent. of the amount injected, and the corresponding figure for male hormone is about 10 per cent. In the case of progesterone, which, as we have said above, is thought to be excreted as pregnanediol, Venning and Browne claim that their method will recover between 12 and 46 per cent. of progesterone injected.

Thus at the present time it is only where excessive quantities of hormones are excreted that assays of the urine are of value. The chief diagnostic use of urinary hormones today is in cases of adrenal tumours. Both males and females with adrenal cortical tumours are found to excrete excessive quantities of androgens. The normal excretion varies from 5 to 15 mg. "sterone," or 16 to 80 international units, per day, but female patients with adrenal tumours may excrete as much as 100 mg. "sterone," or 250 to 300 international units, daily. Such tumours can therefore be easily and quickly diagnosed by androgen assays of the urine.

By such assays it is also possible to distinguish between cases of adrenal tumour and Cushing's syndrome, since in the latter the androgen secretion is either normal or slightly lower than normal.

R. S. Ferguson claimed that it is possible to divide testicular tumours into five groups by a quantitative assay of the amount of gonadotrophic hormones in the urine, but later workers have insisted on the importance of differentiating the type of gonadotrophic hormone as well as the quantity. C. Hamburger divides testicular tumours into four groups on the basis of the type and quantity of gonadotrophic hormones excreted—namely, seminoma, pseudo seminoma, mixed epithelioma and polycystic teratoid, as shown in the accompanying table. Since the prognosis and treatment of these various types differ widely, the importance of such hormone assays will be evident.

No of cases	Diagnosis	Negative	Traces	Hypophyseal hormone	Chorionic hormone	Both hormones
42	Seminoma	13	4	25	0	0
2	Pseudo-seminoma	0	0	0	2	0
21	Mixed epithelioma	3	1	0	14	3
10	Polycystic teratoid	4	2	4	0	0

SPECIAL ARTICLES

MEDICINE AND THE LAW

Damages for Nervous Shock Refused

THE *Law Quarterly Review* has recently drawn attention to an interesting Australian decision which checks the trend of recent cases awarding damages for nervous shock where there is no physical impact. In Chester *v.* Municipality of Waverley the facts were that the town council had dug a trench in a road, rain-water collected in some places to a depth of 7 ft.; it was known that children played on the edge of the trench which the council omitted to fence; a boy fell in and was drowned. His mother had missed him and made search for him; she was present when his dead body was taken from the trench; the shock caused her physical injury, and she sued the council for damages which, she alleged, were due to the council's negligence. Her claim failed successively before the trial judge, the full court of the Supreme Court of New South Wales, and (though one judge dissented) the High Court of Australia. The account of the case should be studied in the October number of the *Law Quarterly Review*, the learned editor's comments convey the impression that the decision is out of touch with the judgments of our own courts and that he prefers the line taken by our own judges. An appeal to the House of Lords is pending in Owens *v* Liverpool Corporation, the case where damages were given to the near relatives of a dead man because the hearse containing his body was jolted by a negligently driven tram-car in the sight of those who were following in the funeral procession. The House of Lords will thus have a chance to lay down the general principles on which damages for nervous shock are or are not proper.

In the Australian case the trial court found that the defendant council was negligent in causing the child's death. The claim failed for want of proof that there had been any negligence towards the mother. Broadly, the judges decided that the council could not reasonably have been expected to anticipate that the mother would suffer shock at the sight of her child's dead body. It was curiously suggested that death may give serious shock but that the mere sight of a body already dead does not commonly produce more than a temporary consequence upon bystanders or even close relatives who see it. The mother, it was said, was not using the road, nor did she see the child drown. "The law must fix a point where its remedies stop short of complete reparation for the world at large which might appear just to a logician who neglected all the social consequences which ought to be weighed on the other side." Against this dictum the learned editor sets the view of Lord Justice MacKinnon in the Liverpool hearse case—"Fear that unfounded claims may be put forward and may result in erroneous conclusions of fact ought not to influence us to impose legal limitations as to the nature of the facts that it is permissible to prove"

The English decision in Hambrook *v* Stokes (1925) may be remembered A mother saw a runaway lorry descending a hill to the imminent danger of herself and her child In the recent Australian case the mother had no anxiety for her own safety and *the court felt able to distinguish the judgments in the* Hambrook case In the Hambrook case, however, the Court of Appeal by a majority disclaimed the idea of making any distinction between shock due to apprehended injury to oneself and horror at the sight of injury to somebody else Lord Justice (now Lord) Atkin said that the duty of the negligent defendants extended to bystanders and third parties, though it must be admitted that Scottish judges declined in 1927 (Currie *v* Wardrop) to follow England in applying this extension The dissenting judge in the High Court of Australia—whose view, in the opinion of the *Law Quarterly Review*, may ultimately prevail—did not feel deterred by any such distinction between peril to oneself and peril to others He was impressed by the agony which the mother must have suffered while searching for her missing child (whose absence was due to the council's *negligence*), this would have been as severe a strain upon her nerves as a view of the accident itself One may indeed ask why the council should be in a stronger position when its negligence causes the mother a desperate effort to find her child than when she merely stumbles across the body after the accident has happened? Ought it to make any difference that the shock to the mother is caused before or after the accident to the child?

SULPHONAMIDES IN WOUND INFECTIONS

A MEMORANDUM supplementary to the one published on p 996 of our issue of Nov 4 has now been distributed by the War Office to members of the R A M C In the first memorandum it was emphasised *that no evidence is yet available for assessing the* reaction to these drugs of persons suffering from shock It is probable that they may stand the drugs badly and the supplementary memorandum therefore advises that the first batch of cases to receive sulphonamide derivatives for prophylaxis or treatment should be carefully observed If patients are severely shocked treatment with these drugs will be better suspended until the circulation, temperature and urinary excretion have been re-established to reasonable levels Should there be evidence that the drugs, in the doses suggested, are not well tolerated, administration should be suspended or the dose reduced If experience shows that the dosage given in the original memorandum is too high, it is now suggested that the following modified course should be tried

Sulphanilamide and M & B 693—For *prophylaxis*, total of 3 g per diem to extend over a period of 3 days administered as one tablet every 4 hours For *treatment*, first 24 hours, total dosage 4–6 g according to severity, but, in extreme cases, such as septicæmias up to 9 g doses should be given 4 hourly, so that half the total dose is given during the first two administrations and the balance equally divided between the remaining four administrations Second 24 hours total dosage and spacing similar to the first day Subsequent days dosage to be guided by the condition of the patient, reducing the *administration of the* drug to 2–3 g per diem Total period of administration not to exceed 9 days

The supplementary memorandum urges that when patients who have received prophylactic or curative treatment with these drugs are transferred from one medical unit to another clear indications shall be given in the transfer documents as to treatment and, in particular, which drug has been employed, as well as the total dosage given If this is neglected, there will be a grave danger of overdosage with the consequent risk of agranulocytosis Individuals who have been found to be unduly susceptible to sulphonamide derivatives *should have this fact* clearly stated on their documents so that the drugs may not again be administered later Susceptible persons inevitably suffer a recurrence of complications when a fresh course of the drug is instituted

SCOTLAND

(*FROM OUR OWN CORRESPONDENT*)

TREATMENT OF RHEUMATISM

IN a lecture on the chronic rheumatic diseases to the local division of the Medical Women's Federation in Edinburgh Prof L S P Davidson reviewed the research activities of the Empire Rheumatism Council and also the council's campaign for the introduction of diagnostic and treatment centres If the public are to press for the necessary legislation, he said, they must first be instructed in the problem, and such instruction is best given by the general practitioner He hoped that practitioners realise the enormous economic loss to the country from rheumatic diseases, a loss which can be largely reduced by adequate facilities for treatment A sixth of the total invalidity of our insured population is due to rheumatic diseases and in England and Wales the annual cost to industry amounts to over £16 000,000 Professor Davidson gave particulars of the survey which he and his assistants carried out on 100,000 insured and non-insured people in the north-east of Scotland The practitioners who cooperated told him that at least 10 per cent of all their work was connected with this group of diseases It is estimated that throughout Scotland over 300,000 persons consult their doctors each year on account of rheumatic disease, and that probably 100,000 suffer from rheumatism in one or other of its chronic incapacitating forms In the ten large voluntary hospitals in Scotland, in which there are 1391 medical beds with 22,414 medical admissions a year, only 1674 admissions are for rheumatic disease, and this figure includes nearly 600 case of acute rheumatic fever About another 5000 cases are treated as outpatients in the physiotherapeutic departments This means that of all the cases only 1 in 100 receives inpatient treatment and 1 in 20 outpatient treatment at the hospital centres. It appears, therefore, that insufficient facilities are available

Rheumatoid arthritis, Professor Davidson continued, must be regarded as a general systemic disease requiring general as well as local treatment This involves long institutional treatment with rest under suitable conditions Faulty body mechanics require correction under the guidance of specially trained medical orthopædists for the prevention and reduction of deformity In addition, adequate modern physiotherapy by means of radiation, hydrotherapy massage and so on is required Attention to the psychological factor is necessary in the adjustment of social relations at home and at work, while occupational factors are of paramount importance in the production and maintenance of the disease An adequate follow-up service is needed in order to catch recurrences early and assist patients during the necessarily long convalescent period Such a widespread service beyond the capacity of the voluntary hospitals and must be provided by national and local authorities After the war rheumatic centres should be established on a regional basis; the centres should be based on a University city, because research and educational facilities are available there. Specialist services such as ear, nose and throat departments, bacteriologists, orthopædists and physiotherapists must be provided It is not yet clear whether the most desirable arrangement would be a close cooperation between the local authorities as financial sources and the voluntary hospitals as sources of medical services, or whether such hospitals should be built in the country on the bungalow system If the latter course is followed, diagnostic clinics must be established in industrial centres so that outpatients may be seen and ambulant cases treated without imposing transport difficulties on the patients Large specially trained social and home-service departments must be organised, together with regional sub-centres in outlying districts which could be visited by consultants. The chronic rheumatic centres should be under the direction of one or more full-time medical officers of health, supported by part-time assistants.

DEATH OF A SHOWMAN

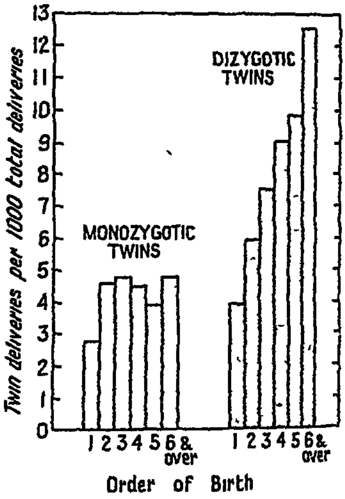
To those who saw him in his heyday the death of Walford Bodie will bring regret For, like all great showmen, he knew something of human psychology, and he played easily on our child-like credulity and love of spectacle. He used the title of doctor (a title which he legally acquired in dental surgery from an American university) and thus helped to add something of the mystery of the old alchemists to his art. All the devices of the medical quack were well known to him, but he used them to amuse and not to dupe his fellow men. He was, too, a master of advertisement. He would time his arrival in a country town just as the douce folk were leaving church, and many of them still remember his top-hat, gold monocle and waxed mustachios as his open landau with its magnificent greys cantered up the main street To the country people he was a sort of benign Rasputin, and there are many tales of his wonderful cures by bloodless surgery. The most striking feature of his performance to older generations was his use of high voltage electric currents, but his real talent was as a ventriloquist His powers of hypnotism were perhaps open to doubt, but he could deal trenchantly with the sceptic. He would quickly recognise and introduce to his audience the gentleman who was determined to show him up by saying that there were, of course, two classes of people nobody could hypnotise—the congenital idiot and the chronic alcoholic, thereafter he had little difficulty with his subjects. But Walford Bodie had lived into an age of film-stars and wireless, and it is significant that at Mitcham Fair some years ago the fat lady was in the next tent

UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENT)

A STUDY IN TWINS

J. Yerushalmy and S E Sheerar have completed a statistical study of twin births, working with 166,000 birth and stillbirth certificates, which include 3660 certificates belonging to 1830 pairs of twins The study is sponsored jointly by the National Institute of Health and the New York State Department of Health, the certificates all being derived from upstate New York. An original method was employed for differentiating the numbers of monozygotic and dizygotic twins Since birth certificates contain no record of the appearance of twins, nor of the placentæ to which they are attached, the authors were obliged to resort to a mathematical method They start from the observation that the ratio of two males, one male and one female, and two females is approximately 1.1·1. From this they feel justified in assuming that approximately one-half of all the same sexed twins are monozygotic. The assumption is tested and found to be satisfactory Using it they conclude that in upstate New York the frequency of monozygotic twins was 4·3 per 1000 total deliveries and that of dizygotic twins 6·7. The figure shows at a glance the most interesting finding in this study. The frequency of dizygotic twins increases very rapidly with the advancing order of birth, whereas the frequency of monozygotic twins is practically constant for all orders of birth. The frequency of dizygotic twins also increases with advancing age of the mother, and evidence is presented to prove that this increase occurs independently of the relationship to order of birth The complete study with tables and charts will be published in the December issue of *Human Biology* I am indebted to the editor for permission to offer you the figure for advance publication



Frequency of monozygotic and dizygotic twin births per 1000 deliveries, in order of birth (New York State, exclusive of New York City, 1936 and 1937)

BUCHAREST

(FROM OUR OWN CORRESPONDENT)

LICENSING OF ANALYTICAL LABORATORIES

THE Ministry of Public Health has published an enactment forbidding private persons or private physicians conducting analytical laboratories unless they acquire a State licence Professors and assistants of the three universities of Rumania obtain a licence upon a simple application without further formality, while specialised physicians, chemists and pharmacists are allowed to conduct such analytical laboratories if they fulfil the demands prescribed in the new enactment With the application, the candidate must send a document proving that he has the necessary qualification, likewise a certificate issued by the institute where he studied, together with 3000 lei, the examination fee The applications are scrutinised by the ministry, in the bosom of which a special committee is acting, which considers only the applications of those who have worked in an inland or foreign university laboratory for at least two years without interruption In specially deserving cases the committee may pass candidates without examination In ordinary cases the candidate can sit for examination immediately. In case of failure the applicant may again present himself after a year, but has to prove that during this year he incessantly functioned in a privileged laboratory. For those who obtain the licence to open a private analytical laboratory, the enactment prescribes what apparatus, equipment and installation has to be possessed. The enactment prescribes heavy penalties for those who make analyses without licence.

NOTIFICATION OF MALARIA

Malaria has now been added to those diseases which have to be notified to the health magistrates. In doubtful cases blood specimens can be submitted to the National Public Health Institute in Bucharest, where analyses are made free of charge and the results sent out the following day by telegraph.

PHYSICIANS IN THE RUMANIAN CHAMBER OF DEPUTIES

Our Chamber is composed on a basis of guilds. Altogether 11 physicians gained entrance into the halls of the Parliament, to wit 7 into the Chamber and 4 into the Senate. Not a single physician has been elected in the capacity of minister, landowner, vineyard owner, manufacturer, workman or journalist, though the number in these occupations is not negligible. Although a doctor, M. Vaida Voevod, former prime minister, and now speaker of the Chamber, never practised medicine. The only medical member of the Senate *de jure* is Professor Anghelescu, late minister of Public Instruction. Two of the appointed senators are doctors, Dr. Hatieganu, professor of clinical medicine at the university of Cluj, and Dr. Lucian Skupiewski, a practitioner in Bucharest. The Chamber allotted 86 places for deputies from the intellectual classes. To these about 60 lawyers were elected as against only 7 physicians. In several provinces, where 6 places were allotted to intellectuals, physicians have not been candidated at all, and almost all places were filled with lawyers.

REQUIEM FOR MILITARY SURGEONS KILLED IN THE LAST WAR

At the Regina Elisabetha central military hospital a requiem in memory of health personnel killed in the 1916–18 war was held with a military parade on the anniversary of the day when Rumania entered the war. Jancovescu, surgeon-general and commander of the hospital, said that 400 health officers, most of whom were doctors, lost their lives. This was a 14 per cent. mortality rate, almost equal to that of the infantry officer corps. In 1918, General Averescu, then prime minister, in a report to the late King Ferdinand, spoke of the heroism and self-sacrifice of the doctors and asked the King to allow military doctors to wear the same service insignia on duty and on festive occasions as are worn by combatant officers. The King yielded to his request and since then military surgeons *are equal in rank with the combatant officers*, and their titles—chief physician, regiment's surgeon, and staff surgeon—have been changed to lieutenant-surgeon, captain surgeon, and so on.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM RECHAUFFEUR

II

When one starts in general practice, I suppose one's greatest anxiety is not to miss the diagnosis of a definite clinical condition. Only after some years' experience does it get borne in on one that it may be a worse mistake to diagnose something which is not there than to miss it when it is. The consequences, for instance, of failing to detect left heart insufficiency may be serious, but they can hardly be worse than those of diagnosing "heart trouble" in a case of functional invalidism. For not only is an organically fit person reduced to an unjustifiable life of stagnation but the *unfortunate relations* and *friends* may find themselves satellites of an invalid chair for an indefinite number of years. If life is to be circumscribed let it not be on false premises.

I remember well a woman of 40 who had spent most of her married life on a sofa, round which her family circulated on tip-toe while her husband cut up her food for her. One day she was unexpectedly told by a young and inexperienced physician that he could find nothing the matter with her and that she could play golf. To everyone's glad surprise she believed him, bought a few clubs and has played the game ever since. Her family has been released from *an interminable and intolerable atmosphere of* invalidism, but yet I fear she is not as pleased as they are, for she told me fifteen years afterwards in an emotional exacerbation that she had been much happier when she was an invalid.

One of the most pathetic things about elderly functional patients is a longing to have something definite found the matter. A patient once said to me, "*If only you could find that I had locomotor ataxy,* I should be much more content." Dr. Relling in Ibsen's "Wild Duck" had his own methods for such unfortunates, but in these days psychology forces us to look deeper. If the average healthy man is deficient in self-knowledge, how great must be the darkness blanketing the mind of the neurotic!

* * *

The neurotic may be described as a person whose symptoms make him unfit for full social life; but what if our social life and our whole civilisation are themselves diseased? In national and international spheres, wars, slum property and unemployment are a few of the serious symptoms of disease of the body politic, and self-knowledge must replace self-respect before we can hope to see the community emerge in a state of health. Saints have always been regarded as unfit for social life, and it may well be asked whether there will ever be an end to the stoning of the prophets. When the Founder of the Christian religion was in the wilderness the devil offered, as a reward for submitting to temptation, daily bread, prestige and power. Today each of these is regarded by the ordinary citizen as a justifiable and laudable ambition. Indeed the will to dominate is found on every side *in national life.*

When, therefore, we inquire to what extent the individual is unfitted to social life, we must also ask how far society has made him unfit. Children are brought into the world in a highly irresponsible manner. From the economic point of view men and women are certainly not encouraged to marry at all though the reproductive instinct remains sufficiently strong to prevent any catastrophic decline of the population. In this connexion it is worth remembering that England was quite as important in the days of her seven million inhabitants in the reign of Queen Anne as she is today with her forty-odd millions.

People, I fear, are inadequately prepared for marriage, but even less are they prepared for parenthood Where our rising generation would be if nature had not endowed them with the instinct of affection for children, I do not know. Even so, many folk are quite surprised when they find natural primitive hostility existing between two boys or two girls in the family, and they are often stupid enough to favour one child at the expense of another, thereby doing life-long harm to both Some parents are even jealous of their own children, and I came across a schoolmaster who habitually neglected the cricket-coaching of his own son, whom he had never forgiven for being born at all, while lavishing instruction and care on his pupils

I can only explain such ignorance by assuming that self-knowledge is entirely absent. Indeed, many people will say that even a little elementary introspection is morbid and unhealthy A priest once asked me whether introspection was not morbid, he was answered when I asked him in his turn what exactly was meant by preparation and confession in the Sacrament

* * *

I fear that Society likes to think and be told that it is well-nigh perfect, and that such imperfections as do exist are due not to the "normal" individuals who compose it, but to the queer people who discompose it! the awkward child, the oddity who refuses to run the course to order, the bitter critic of Society, and the misguided creature whose politics are not its own To Society the last act of Shaw's "St. Joan" seemed an unpleasant sequel to an otherwise entertaining play; the pharisaical attitude towards the pharisees of the New Testament is still almost universal.

Fortunately the remedy is at hand, not only in the indispensable practice of introspection and self-knowledge, but in the building up of properly integrated individuals by the study of character Analysis, biological and psychological, is giving the world of both herd and individual an enlarged sense of responsibility So both will have the chance to develop a new order of things But whether this can be done without bringing down in confusion the results of centuries of social growth is much more doubtful.

* * *

It follows from all this that the study of the neurotic must involve the study of his environment past and present, and especially his human environment In all but the simplest cases, the father, mother, brothers and sisters and friendships of the patient are of paramount importance in calculating the possibility of the patient's readjustment to social life The initial difficulty is to get the neurotic to understand that it is not his or her quasi-physical symptoms that matter but the emotional state underlying them. This is a task which has to be carried out without undue damage to amour-propre. The great thing is to let the patient see that the physician is interested in him and to get him to talk more about his life and personality than about his symptoms. Thereafter the novel idea that the trouble is due to emotional factors rather than physical facts can be rationally introduced by interesting him in simple psychological theses applicable to his case. Among these one may mention the use and abuse of the acquisitive, reproductive and herd instincts, Jung's conception of introversion and extroversion, and Adler's inferiority-superiority ideas The neurotic, always interested in himself, will not put up much resistance to such handling and will soon become, surprisingly, a student of the technique

But such analysis must always be accompanied by fresh efforts to rebuild the personality, and to furnish it with new ideas to replace the old emotional conflicts that are being resolved Often, indeed, it will be found more difficult to finish treatment than to begin it A humorous relationship on terms of equality between patient and doctor must at all costs be maintained. Only thus can the development of an insoluble transference be prevented. The patient must never be allowed to forget that he is largely responsible for his past weaknesses and his future recovery In this country, at least, every individual is still responsible for his own character Let us hope that this responsibility will never be surrendered to the herd, the emotions, the material world or even the physician.

THE PIRQUET AND MANTOUX TESTS

OUR Denmark correspondent writes as follows: Tuberculosis specialists in Denmark have found 50–70 per cent of their Mantoux-positive reactors The Norwegians, on the other hand, get a positive Pirquet reaciton in 90–95 per cent of their Mantoux-positive reactors Investigators in both countries have been puzzled to explain the difference It is, indeed, so marked that while the Pirquet test is coming to have little more than historical interest in Denmark it continues to be the standard test in Norway, the Norwegians holding that its slightly greater margin of error is more than compensated for by its simplicity. Dr. J. Holm of Denmark and Dr. H J. Ustvedt[1] of Norway have tried to solve this minor international problem by working together in Copenhagen and checking up each other's technique and interpretations as they tested 258 school-children and 72 young adults with both reactions They found that with only a single Pirquet test they could get a positive reaction in only 73 per cent. of the Mantoux-positive children and in only 71 per cent of the Mantoux-positive young adults But when the Pirquet tests were repeated twice, these two percentages were increased to 90 and 87 respectively. They suggest that the more a community suffers from tuberculosis, and the more it is in consequence exposed to super-infections, the greater will be the sensitiveness of its members to tuberculin In other words, in a community in which there is little tuberculosis, many of its members will be comparatively tuberculin insensitive, and will require two or three consecutive Pirquet tests or a Mantoux test if a positive reaction is to be evoked

---

[1] *Nord Med* Sept 2, 1939, p 2673

IN spite of the taking over of spa hotels, all the British spas—Bath, Bridge of Allan, Buxton, *Cheltenham*, Droitwich, Harrogate, Leamington, *Llandrindod Wells*, Strathpeffer, and Woodhall Spa—have made arrangements for dealing with accommodation difficulties and it is usually possible to meet the requirements of prospective visitors Invalids should communicate with the director or manager of the spa they require, or if in further doubt or difficulty with the honorary secretary of the British Spas Federation, either at the Pump Room, Bath, or at the Travel Association Information Bureau, 28, Cockspur Street, London.

LETTERS TO THE EDITOR

A PLAN FOR BRITISH HOSPITALS

SIR,—I think that on the whole the conclusions of your special commissioner are sound There is no doubt that Harley Street is finished There is no doubt that the voluntary system is finished, but there is some doubt as to what is to take its place I am quite sure that decentralisation has come, and I like the regional distribution of the British Hospitals Association much more than the Emergency Hospitals Scheme, which seems to be based largely on county boundaries rather than hospitals and hospital accommodation

I am not sure that I quite believe in the whole-time medical officer, certainly not for the senior posts There is a great deal to be said for the continental scheme of having a senior who is allowed to do private practice and a considerable number of assistants who are full-time and hope eventually to rise to consultant status and become part-time The general practitioner will not send patients to a man who is not known scientifically I know men in London in the municipal hospitals who are doing remarkably good surgical work, but the general practitioner knows nothing about them, and such men would never get any practice outside their hospitals. If young men on full time salary were encouraged to do as much original surgical work as possible I think one would get the best part-time consultants for the future

I feel that the whole plan will have to be considered very carefully, it will certainly stimulate people to put down concretely ideas which have been simmering in their brains, and I feel that nothing but good can come from ventilating the subject.

I am, Sir, yours faithfully,

J JOHNSTON ABRAHAM

Queen Anne Street W 1, Nov 1

SIR,—However troubled the dreams that have disturbed the slumbers of doctors since war began, I doubt if a more horrific nightmare could be imagined than the one so light heartedly conjured up by your special commissioner on British hospitals Encouraged by the impressive title that editorial expansiveness has conferred upon him, armed—if I may respectfully suggest it—by a unique unfamiliarity with both general and consulting practice, blissfully indifferent to the incurable eccentricities of human nature, well planted in his office chair, and equipped with paper, pen, and ruler, and with compasses to draw those attractive circles in which he proposes to impound both doctors and patients all over the map, he has devised a scheme for the future, particularly of our teaching hospitals, that I trust I may not live to see realised

He begins in the true totalitarian style by summarily condemning the consultant to an early death, and by telling his victim that he is already moribund Now I, for one, refuse to be killed off in this fashion to make an organiser's holiday Up to the outbreak of war I—and many of my colleagues—felt in the best of professional health and looked for a normal expectation of useful professional life True, since that date we have been nearly suffocated by the kind of organisation your commissioner desires to make chronic but should we be so happy as to escape the paralysing toils of bureaucracy we look forward to a resumption of useful service, and to arming ourselves against the future assaults of the would be medical Gauleiter

Nor have I any reason to suppose with your commissioner that hitherto I have lived "on the charity of G Ps" I cherish the belief that when my services have been asked for they have been needed I am not conscious of being the parasite your commissioner quite clearly implies I let him down lightly when I say no more on this point It needs no unusually penetrating mind to discover that the consultant must be liquidated, not because he is already dying, but to make room for the whole-time salaried medical officer to whom your commissioner has decided to give the control of the teaching hospital The bait he offers is the professorial unit

I myself have been a whole-time assistant in such a unit I should be blind if I did not realise its merits, and ungrateful if I did not acknowledge the benefits I derived from my apprenticeship therein Yet even the most enthusiastic advocates of the professorial Units would not maintain that the entire clinical education of the medical student should be confided to their care Both whole-time teacher and practising consultant have things of value to give the student, and to turn the latter wholly over to teachers who make no contacts with the special problems of private practice would be doctrinaire obstinacy

I venture to believe, also, that the general practitioner might not find to his taste the inevitable limitation of his choice in the matter of consultant and specialist advice to a small regionally available group He would have no other choice under this scheme since all other consultants have been liquidated How utterly remote from reality, too, is the suggestion that the consultant rarely has to visit the patient in the latter's home, and that the whole-time hospital officer will never have to leave the sacred precincts of his hospital for the purpose How unsatisfactory, also, the opportunities of cooperation between the local general practitioner and the whole time consultant who spends most of his time in the country hospital

I note, however, that with a fine eye for expediency your commissioner refrains from an attempt to regiment the general practitioner in any other respect than his choice of consultant For the time being his neutrality is not to be violated, but who can feel safe from the determined organiser? He is never satisfied

So much for the future of the teaching hospitals and their medical staffs if such a grim prospect of helotry can be called a future But how will the patient fare under this scheme?

Much is offered him in the way of financial relief, but nothing else Because we may have another war in twenty years' time all our hospitals must all the time be in the country As the unfortunate patient is whirled along the by-pass in one of those Green Line coaches that so take the fancy of your commissioner, he will doubtless be cheered by the thought that should war break out before his own eyes [illegible] he will not be [illegible] pilgrimage cheerfully [illegible] of the [illegible] he is so soon to [illegible]

Yet, as your [illegible] many [illegible] the best of plans [illegible] extremely [illegible] recover from the [illegible] the [illegible] and [illegible] Further [illegible] to see him. Why impose upon them the burden of time and expense involved in journeys out of town?

Finally, what a picture comes to mind when we think of hospital staff and students careering in and out of London in Green Line coaches to and from the scattered fragments of their hospitals, each fragment wriggling on its own like the pieces of a chopped worm. Chaos and waste of time and money cannot be disguised by calling them decentralisation.

Indeed, it is upon the altar of this glib and euphemistic abstraction, this word of magic power, that your commissioner proposes to offer us up. To those able to distinguish between words and things it is not impressive. In this country we have always prided ourselves upon a rich store of native common sense. We should forfeit our title to this if we were to let ourselves be chained in the fetters of large-scale organisation, the ominous clanking of which upon our wrists we have heard in the past two months.

I am, Sir, yours faithfully,

Portland Place, W.1, Nov 2. F. M R. WALSHE.

SIR,—The profession owes a debt of gratitude to you for drawing attention through your special commissioner to the necessity for the speedy abolition of the existing schism in the hospital service The hospital needs of the general population are one, and that the hospital service should be split into the two separate (and sometimes antagonistic) departments of voluntary and municipal is on the face of it absurd. Now that realisation of the need for rational organisation has been forced upon us, there can be few without axes to grind who will wish to see the schism further perpetuated.

All concerned with hospital medicine will probably share the views of your commissioner in favour of regionalisation and against centralisation. Centralisation in medicine spells death. For this reason it is surprising that your commissioner apparently relegates the pathological work of his hospital "firms" to a central laboratory having no connexion with clinical work Your commissioner gives credit to the value of the work done by the clinical professorial units. Might I, as a former member of the staff of one of these, point out that the enduring purpose of my own unit at any rate was to bring the wards into the closest possible touch with the laboratory, and vice versa. In the view of my colleagues on the staff of that unit it was in this way, and this way only, that clinical medicine could best advance. Fifteen years after leaving the staff of that unit I find myself strengthened in that view.

It will not suffice if your commissioner's "advanced base" or "main country hospitals" relegate their pathological work to some central laboratory out of touch with clinical work If the reformed hospital service is to make contributions to the advancement of medicine, it is essential that this work should be done in laboratories on hospital premises, in close touch with each clinical firm and under the supervision of practitioners acquainted equally with the problems of the wards and the laboratory

I am, Sir, yours faithfully,

Wolverhampton, Nov 1 S. C. DYKE

SIR,—Your special commissioner has, I think, spoilt the balance of his report by what appears to be a rather venomous attack on consultants, illustrated by the following extracts:

(1) "The consultants get their patients by the charity of G.P s."—This is offensive and not even true. The G P. is anxious to call in a man whom he can trust, in his own interests as well as those of the patient. If the treatment or operation is not successful, the G.P. not uncommonly is blamed for his choice of consultant.

(2) ". . . go into a nursing home at 10 or 15 guineas a week and in addition find 120 or more guineas for the surgeon, anæsthetist and radiologist."—This takes no account of the cheaper beds in nursing homes or the pay beds in the voluntary hospitals. No consideration is given to the fact that in many cases the surgeon charges a far lower fee than 100 guineas after discussing the patient's circumstances with the G.P.

(3) ". . . our present 'rob the rich to pay the poor' consulting system."—Is it robbing the well-to-do, who can, let us say, afford to buy a Rolls-Royce or other four-figure motor-car, with corresponding houses and establishment, to ask them to pay 100 guineas for an abdominal operation?

He suggests that all the senior medical staff of the hospitals should be whole-time. In this case who would be the specialists whom the well-to-do and "very rich" might consult? How can whole-time men visit the homes of patients on those "rare occasions" when a specialist is needed? And on what grounds does he say "rare occasions"? He must know very little of consulting practice

Your commissioner is evidently an enthusiast for bureaucracy in spite of his remarks about red tape. I cannot think that our consultants as a class would wish to be tied down to the whole-time service he suggests. A comforting position perhaps for those lacking in initiative, but one which holds out no prospects of the higher income which a man of energy, ability and enthusiasm should be able to command Nor would it make for medical progress—the stimulus of competition would be lost.

I could write at length on the value to the country of the spirit that moves in our voluntary hospitals, where a patient is an individual and not a case, in such marked contrast to the conditions which obtain in hospitals abroad Here we maintain the great inheritance of freedom and liberty, and through our voluntary system our students learn unconsciously to carry on the tradition of service which is one of the finest characteristics of our profession Our voluntary hospitals, and the innumerable subscribers and workers who freely give their time to them, help to keep alight the torch of kindliness and compassion for those in distress

I think the day will come when every great hospital in London will have a country branch—possibly a development of the present homes of recovery It seems probable that before long the State will have to make grants to the teaching hospitals on the lines of the University Grants Commission But I feel that the conversion of the staff of our hospitals into whole-time officers would be a national disaster

I am, Sir, yours faithfully,

London, Oct 31 ANOTHER SURGEON

SIR,—To me it seems that the excellent plan for British hospitals set out by your special commissioner could be applied to tuberculosis and thereby check the debacle of tuberculosis schemes which is causing general concern There is no doubt that it will be difficult to retain the casualty beds under the emergency hospital scheme at municipal and county sanatoria and at the same time build up adequate tuberculosis services Public opinion is demanding the return of normal facilities for diagnosis and treatment despite the ever decreasing financial reserve which local authorities can draw upon for developing their tuberculosis schemes. In some areas there has been little or no change in the accommodation for the tuberculous

In others there has been a severe encroachment on all tuberculosis institutions, even going so far as to convert handicraft shops into wards for A.R P purposes But in all areas there has been disorganisation due to the rapid movement of masses of population This has been particularly felt in the dispensary services which, although not so depleted as the bed accommodation, are confronted in many places with larger numbers to be dealt with by smaller staff

Surely *now is the time to begin to consider schemes* for the reconstruction of a tuberculosis service for the whole country which will be an improvement upon pre-war conditions We should recognise the necessity for

1 Provision for diagnosis of symptomless tuberculous lesions
2 Development of a rehabilitation scheme, based on the existing E H.S. areas, providing remunerative employment for ex-sanatorium *patients either in* colonies or in special factories under medical supervision
3. Formation of a national tuberculosis scheme, on lines similar to the proposed national hospital corporation, with regional control of prevention and aftercare superseding the isolated and independent action of separate local authorities

I welcome the Minister's suggestion of cooperation between the National Association for the Prevention of Tuberculosis, the Joint Tuberculosis Council and the Tuberculosis Association, with the immediate appointment of a committee to begin work on the problem In such a way good may come out of the evil which has befallen us, and when peace returns we may already have the framework of a new structure free from the faults and extravagances of pre war methods

I am, Sir, yours faithfully,

Mill Hill N W 7, Oct 31 T B

SIR,—Your outline for the future of British hospitals is admirable and I hope that such a scheme will be permanently adopted From the G P 's point of view may I raise a few small points

(1) The increase in multiple G P firms to which your commissioner refers will go on for the benefit of the community, and the single handed practitioner will eventually go the same way as Harley Street However, the efficiency of these firms will be seriously reduced if they are deprived of hospital work for the individual G P will no longer have access to his specialty He will revert into a certificate-signer I suggest it would be an advantage to all if the small outlying hospitals corresponding to the war time casualty clearing stations (see your fig 3) were staffed at least to some extent by part time G P.s The whole time consultants would work at the main O P clinics and the main hospitals

2 No practitioner whether hospital or G P should be expected to work both by night and day, and wherever practicable there should be a G P and hospital night service of doctors

(3) I was pleased to see obstetrics divorced from gynæcology Under a whole time service this may not be necessary, but to prolong the present system would be deplorable The average gynæcologist today knows no obstetrics and avoids it like the plague, but has to pose as a consultant because no one else will do it and it is too small a specialty (and too strenuous) to be done alone in private practice

(4) One hopes that the end of Harley Street will lead not only to the employment of the best men in favourable circumstances, but also to the end of some of the queer people to be found there

(5) The salaries in your commissioner's plan are too small The better posts should rise to £3000 p.a while no job should start at less than £300 p a with board and lodging After all a man has done six years training before he starts a junior job and to offer him wages little more than a labourer is a poor reward The juniors won't all get the best jobs and every post should provide comfort commensurate with the type of work being done, plus sufficient to enable one to educate one's children in the best possible way

I assume that all jobs, whether hospital or G P, will be pensioned It is more difficult to be a successful G P than a successful specialist

I am, Sir, yours faithfully,

Reading Nov 3 STANLEY C ALCOCK

SIR —Editors and writers to the medical journals dance at what they consider to be the funeral of the voluntary hospitals This behaviour is the more indecorous since the E M S, which in their opinion spells the death of the voluntary hospitals, has only been made possible by the loyalty of "those most stout and gallant last ditchers of the medical profession, the consultant and specialist group" This peculiar brand of persons who depend on ' the charity of the general practitioners" (inspired individuals "able to solve almost all difficulties of clinical diagnosis by discussion between partners') still persist, in spite of your special commissioner, in considering "The Hospital" rather more than bricks and mortar and very much more than words and paper They realise that like most live bodies the voluntary hospitals have many faults which they see could be, and are being remedied by coordination and planning, hindered chiefly by lack of money

They think that abolition would be a sad end to centuries of inspiration and service, and since they too are sometimes able to solve clinical problems by discussion, they believe that there are better cures for headache than decapitation In war the bureaucrat is master, and floods of paper and words may well submerge the voluntary hospitals while they are serving in the front line, but before dancing exultantly on their coffins, it would be well for the bureaucrats to make quite sure that the bodies of their victims are inside

I am, Sir, yours faithfully,

TEMPORARY CIVIL SERVANT

War Hospital Nov 1

SIR,—Dr Izod Bennett's criticisms of your special commissioner's report show, I think, a metropolitan strain, perhaps he should be reminded that the article was entitled ' a plan for British hospitals" Your special commissioner says of medical committees

> " admittedly the medical committee of a voluntary hospital is not perfect—occasionally its decisions are influenced by self interest—but it does represent a remarkable pooling of professional knowledge, far more capable of taking an all round view of medical problems than any medical superintendent If members of medical committees were freed from the monetary claims of private practice their decisions would probably be as wise and unbiased as anything human can be

Vested interest is I believe, a serious drawback to the development of the voluntary hospital I remember in my student days all the fractures were admitted under the care of the general surgeon for the week, who, as a rule, did not take great interest in his fracture cases, frequently leaving the treatment to his house-surgeon, but, when a young and enthusiastic *orthopædic surgeon suggested that all fractures should* be admitted under the care of the orthopædic department, he was met by a storm of protest and not a little abuse Such phrases as "trying to steal the bread and butter out of the surgeons' mouths" were to be heard

I know of a provincial hospital in which the obstetrical and gynæcological department is staffed by general practitioners, but the operative work is done by the general surgeons who are in consulting practice in the town and include gynæcology in their private practices. The medical board of this hospital "passed over" an experienced gynæcological specialist—a first-class surgeon—for two practitioners with little or no operative experience. How often does one read in the advertisements of practices and partnerships for sale, "ingoing partner is likely to be appointed honorary surgeon to hospital."

I fully agree with your special commissioner that if the members of medical committees were freed from the monetary claims of private practice their decisions would probably be as wise and unbiased as anything human can be. At the present time, however, the vested interest of private practice combined with shortage of hospital funds is a serious drawback to the development of the voluntary hospital.

I am, Sir, yours faithfully,

Nov. 4 GENERAL PRACTITIONER IN THE NORTH.

SIR,—Your special commissioner deserves to be congratulated on his realistic report on the future of British hospitals and specialist medicine. His deductions seem to me incontrovertible. At this critical moment in the development of medical services a frank statement of the position is of great value, and one hopes that the report will be widely read.

I have two comments to offer. The report assumes that panel practice (with extension to relatives of the present insured population) will continue, and this I regard as unwise. In the long run I feel sure that general practice with remuneration on a per-capita basis and additional fees for private work will prove unsatisfactory for medical services, particularly if all, or nearly all, specialist work is to be on a whole-time salaried basis. It may be a safe rule for reform to make as few initial changes as are consistent with moderate success in the working of a new organisation, but I believe that a large number of practitioners both in town and country would now welcome the opportunity of being included on a salaried basis in a regional medical service. To eliminate the evils of competition in specialist medicine while leaving it untouched in general practice (where it is working the greatest harm) seems illogical.

Secondly, I suggest that THE LANCET invites opinions from men and women with first-hand responsible experience of both municipal and voluntary hospitals on the report's recommendations for internal hospital organisation. I confess that the idea mentioned in your leading article in the same issue of a "bigger and better type of hospital medical administrator" fills me with apprehension!

I am, Sir, yours faithfully,

Inverness, Oct 30. DUNCAN LEYS.

SIR,—Your commissioner has performed a public service, for when we see the medical organisation of the country crumbling before our eyes, we should all be giving serious thought to the future of our profession. The subject is one about which few of us can write without betraying our prejudices. We do not wish to lose what we know and like; for one man this means retaining many of the features of the voluntary system and rescuing the consultants from "penury," while for another it means extending the municipal system and retaining the medical superintendents. Our zeal for the common good is tempered by the interests of ourselves or of our kind. My main ground for criticism is that the plan is not wide enough. It is a plan for British hospitals, while the public need a plan for a general medical service. The Ministry of Health is considered a nuisance, so it is to be replaced by something new. It is a little hard on the Ministry that it should have to bear the brunt of the complaints provoked by the Emergency Medical Service, an organisation which is very much under the influence of the voluntary hospitals and the British Medical Association. The peculiar conditions of this kind of war have made many institutions and individuals vulnerable, and even the British Broadcasting Corporation, which in the plan is held up as a model, has not entirely escaped censure. In my past experience the contacts of the Ministry with the poor law hospitals were entirely beneficial. My complaint used to be that the small size of the staff made such contacts rare events. The relaxation of control which has followed the passing of the Local Government Act of 1929 was, I think, a retrograde step.

The plan pays scant attention to the subject of preventive medicine. Nothing is done for infectious fevers, tuberculosis, or "chronic" cases. Maternity work is represented by 60 beds for a population in which there will probably be about 10,000 births a year. Child welfare and the school medical service are left outside the purview, and the whole of the present domiciliary or general-practitioner service is accepted with little modification. The limitations of your commissioner's vision are indicated by the allocation of beds in the hospital. There are 320 beds for general surgery and 240 for medicine. This may be the proportion customary in voluntary hospitals, but it does not correspond with the proportions of surgical and medical illness in the population at large. Up to the present the voluntary hospitals have been able to select for admission such cases as they liked, without any feeling of responsibility for the classes which were rejected, or without considering the effect which the skimming off of the interesting and stimulating cases might have on the hospitals or institutions which had to treat the residuum. This policy is now being called in question. The responsibility of hospital administrators is wider than many have yet realised. A hospital should be a dynamic centre of the health service. It should not selfishly retain its emotional drive within its own boundaries, but should radiate stimulation and help, as widely as possible, throughout all the agencies concerned with the public health.

It is with this thought in mind that the plan of your commissioner should be examined.

I am, Sir, yours faithfully,

HENRY H MACWILLIAM,
President of the Medical Superintendents' Society
Walton Hospital, Liverpool, Nov 3.

THE CONSCRIPTED PSYCHOPATH

SIR,—The letter of Dr Ross in your issue of Nov 4 certainly brings up a matter of great importance, and I, for one, would be more than grateful if he could help us to spot such cases. It may or may not be generally known that the medical boards are supposed to examine 30 recruits in 2½ hours—which thus allots 5 minutes to each of the five examiners for each recruit. Before the medical boards began in June I protested to the Ministry of Labour that it was not possible to examine men thoroughly in this time. I was then shown a memorandum by the authors of the regulations by which the boards work. In this it was stated: ". . . and after a little experience it will be found that they can examine 45 or even 60 in the time (2½ hours)" In practice I find that it *takes us 3¼ hours to examine 30 men, and even then* one has misgivings that some of the gradings have been given incorrectly It follows that Examiner No 1 of the board has at most 6½ minutes to test the *vision, to examine the nervous system, and to take a* complete medical history Is it, therefore, to be wondered at that occasional mistakes are made by this examiner, or, in other cases, by the other examiners? I admit that where a recruit brings a medical certificate such a case as that quoted by Dr Ross should not occur If Dr Ross, with a realisation of our difficulties, could help us to recognise these cases in a few minutes—or moments—no one would be more grateful than I

I am, Sir, yours faithfully,

Nov 3 CHAIRMAN OF A BOARD

SIR,—Dr T A Ross opportunely calls attention to the importance of a history of psychiatric illness before enlistment in many of the men who suffered from so called shell-shock in the last war, and I should like to support his thesis by actual figures

In discussing predisposition to breakdown as revealed by the history obtained from such patients, I wrote (Psychoneuroses of War and Peace Cambridge University Press 1920 Pp 39 and 40)

> Some standard is necessary, and I have taken as mine the consideration whether, with my present knowledge, I would on psychological grounds have rejected the man on examination before enlistment, with his previous history, as now known, placed before me
>
> The detection of predisposing factors depends upon experience in investigation, to estimate this influence I divided my series into groups corresponding to the first and second half of the period during which I have been engaged in this work In the first half, of 223 cases, 156 (70 per cent) were found to have no predisposition; in the second half, of 192 cases, 83 (43 2 per cent) were found without predisposition There having been no selection of cases in these two periods, the difference is probably due to my increasing knowledge of what history is likely to be found, it follows that further experience would still more decrease the percentage of cases showing no predisposing factors, but I have not yet reached the conclusion that every patient must have had a predisposition to nervous breakdown I give examples in chapter 15 of men who, seemingly possessed of more than ordinary courage, finally succumbed to continual strain

I noted in a later passage that members of a predisposed group that I called "psychasthenics" sometimes withstood with great endurance the strain of war I would now amend this by separating a group of obsessional self drivers who, though presenting nervous symptoms, are often capable of excellent work and whose exclusion from service should not be recommended even though there may be a tendency to ultimate breakdown Captain Stanhope in the play *Journey's End* is a perfect portrayal of such a self driver with his obsessional make up so accurately presented that we are reminded how the novelist or playwright is often a better psychologist than the medical man

Even when allowance is made for this emendation, the number of men who should have been excluded is not greatly reduced and one may say that in one group of hospitalised mental patients about 50 per cent were the country's bad bargains and should not have been enlisted in the combatant forces A statistical table showed how the average period of service abroad was nearly halved in those with predisposition thus confirming the practical value of my classification This period sank from 20 5 months, in those with no *predisposition, to 2 7 months in those whose already* existing symptoms, unaltered by warfare, were bad enough to bring them to hospital This latter group (10 per cent of the total) were not merely predisposed to breakdown, they were candidates for hospital treatment when they enlisted

To Dr Ross's examples I will add one story told me by the man concerned, who, among other troubles, had given up jobs and left lodgings because of a delusion that he infected people with a dangerous skin rash, and carried with him a certificate from a dermatologist saying, "I hereby certify that Mr X is not suffering from any infectious skin disease, although he thinks he is." He sought to enter the Territorials a year ago, but when the examining doctor produced a stethoscope he felt it his duty to warn him about his powers of infection and produced the certificate "What happened then?" "Oh, he showed it to the other doctor and they had a laugh about it and passed me in" Probably an expensive laugh

I am, Sir, yours faithfully,

Queen Anne Street, W 1, Nov 6 MILLAIS CULPIN

SIMULTANEOUS IMMUNISATION AGAINST TETANUS AND TYPHOID

SIR,—Active immunisation against tetanus by toxoid has now been adopted, and many of our soldiers in France have already been inoculated Immunisation against enteric fever was carried out during the last war by injection of T A B Ramon and Zoeller in 1927 advocated the simultaneous injections of T A B and tetanus toxoid since they had found that the prophylactic effect of each was increased thereby

The protection given by T A B is by no means complete There were 4000 cases of enteric fever among inoculated soldiers during the four years of the great war, and in a small American contingent of *248 men all of whom had been inoculated, 98 contracted the disease*

Intravenous injection of the vaccine in rabbits produces much more immunity than subcutaneous injection in man, but this method cannot be used because of the severe "protein shock" which would occur

If endotoxin cannot be used for human immunisations, endotoxoid (endotoxin detoxicated by formalin) can It has been prepared by Grasset[1] of Johannesburg, and used with great success for several years The immunity is both antitoxic and antibacterial Subcutaneous injection never caused enough reaction to interfere with the miners' work *In one mine in which 60,000 workers had been* inoculated during the years 1935 and 1936, there was only 1 case of typhoid and 2 of paratyphoid, while during the two previous years the mortality was an average of 5 per 1000, with a mortality of 1 per 1000 in those subjected to systematic T A B immunisation The success of endotoxoid inoculation led to a steady increase of those volunteering for immunisation rising from 21,700 in 1933 *to more than 160,000 in 1937*

It would seem that two subcutaneous injections of equal quantities of tetanus toxoid and typhoid endotoxoid followed at an interval of six weeks or preferably three months, by twice the dose, will give permanent and solid protection to our troops against both tetanus and typhoid fever

I am, Sir, yours faithfully,

Worthing Oct 31 HERBERT H BROWN

---

1 Grasset E Trop med J 1939 2 35

RADON SUPPLIES

SIR,—The radon centre at the Middlesex Hospital has been transferred to quarters in Bedfordshire, by the courtesy of the management of the Barton Lime Co, and supplies of radon will be available as from Nov. 10 The expenses involved in the transfer of radium and plant and the equipment of the new quarters are being borne at present by the Medical Research Council and the British Empire Cancer Campaign. The accommodation is being shared by the London Hospital, who are installing their radon plant there Radon from 1½ grammes of radium will be available from this emergency centre Should the demand for radon exceed the supply, it is probable that other former radon centres will join in the scheme, bringing in additional quantities of radium.

It is proposed to charge a flat rate of a shilling per millicurie, but it is recognised that for some forms of treatment radon at this rate may prove too expensive for many users. For example, the treatment of uterine cancer by the Stockholm technique would involve supplying 125 millicuries on three separate occasions The use of 125 millicuries for 22 hours (first treatment) would utilise less than 20 per cent. of the radon supplied This running to waste of 80 per cent. of the supply can to some extent be minimised by arranging that several cases are treated by means of the one supply. Certainly two and possibly three patients in series could adequately be dealt with, provided we can get collaboration to this end If institutions would bear this in mind when requisitioning radon, a great saving can be effected, and many more patients can be treated

Platinum radon seeds will be charged at cost, but ordinary platinum screens and applicators will be lent free of charge

Communications should be addressed to the Radon Centre, c/o Barton (Beds.) Lime Co, Barton-in-the-Clay, Beds

I am, Sir, yours faithfully,

SIDNEY RUSS.

Barnato Joel Laboratories, The Middlesex Hospital, Nov 6

EXPECTORANTS

SIR,—As a practitioner long nourished in the faith that potassium iodide and ipecacuanha were expectorants, and as a taxpayer responsible, in however minute a degree, for finding the monies which are paid out by the Medical Research Council, I hope that Dr Stanley Alstead will complete the research of which the first part is published in your issue of Oct 28

He has taken, it seems, 17 cases of chronic bronchitis (although only 16 appear in his fig. 1) and has kept "nearly all" of them in bed. He has then proceeded to administer pot iod gr 5 to 10 for varying periods and at unstated intervals, followed by ipecacuanha in constant doses but again for varying periods During this time he has observed the amount and character of the sputum, though his remark "the mucoid sputum of one patient became even more watery" suggests that "mucoid" and "watery" were regarded as interchangeable terms Having done all these things, Dr Alstead has demonstrated a reduction in the daily output of sputum and has suggested that this must have been due to the hospitalisation of the patients. It is likely enough that his deduction was correct, but he then goes further and insinuates that his research also shows an absence of expectorant activity in both of the drugs mentioned. There seems to be nothing in his paper to warrant this conclusion. It is quite possible that 17 other patients treated in the same manner, but without the drug, would have shown a much greater fall in sputum output. Until we have Dr. Alstead's figures for some such group of controls the value of pot. iod and ipecac. must remain uncertain, the expenditure of the Medical Research Council unjustified and the reputation of scientific research in this country just a little lower than it ought to be. May one add that the value of ipecac cannot be tested to any advantage by administering it only to those who are already deeply under the influence of another drug?

I am, Sir, yours faithfully,

Sevenoaks, Oct 31. GORDON WARD

ARTIFICIAL RESPIRATION IN FIRST-AID

SIR,—Your special article on this subject[1] invites one criticism. It is suggested that in carbon-monoxide poisoning immediate artificial respiration is required Actually, it is a subacute asphyxia, in contrast to drowning and electric shock, which are very acute In carbon-monoxide poisoning, breathing fails from lack of CO_2 rather than oxygen, and immediate artificial respiration without CO_2 being given actually may do harm by washing out what little CO_2 remains. The need for CO_2 is immediate and to waste time sending for a bulky cylinder of oxygen mixture is a mistake Fresh air contains quite enough oxygen for ordinary resuscitation. The first essential is to supply CO_2 and I never venture on duty without my pocket supply in the emergency bag. Given a source of CO_2, artificial respiration becomes a necessary and rational procedure

I am, Sir, yours faithfully,

Bovingdon, Oct 24. GILBERT BURNET

MALARIA AND WAR

SIR,—In connexion with Sir Rickard Christophers's masterly presidential address reported in THE LANCET of Oct. 28, it might interest your readers to hear of my experience of malaria during the Ethiopian Campaign 1935–36.

The campaign started on Oct. 3, 1935, and ended on May 9, 1936 On the northern front a number of zones, such as the Mareb region, were badly malarial, and on the southern front all the zones were terribly malarial, the disease being general among the indigenous Somali population With an army of 500,000 men (including the large militarised labour force) there were during the whole period of the war 1241 hospital admissions for primary malaria and 1093 admissions for relapses, with 23 deaths from pernicious forms, including black-water fever, which was extremely rare Judging from the East African campaign during the war of 1914–18 an enormous number of hospital admissions for malaria and over 2000 deaths might have been expected In the East African Expeditionary Force, which in 1916, in round figures, was 50,000 strong, there were during the period of seven months, June to December, 15,768 admissions to hospital for malaria, with 263 deaths In 1917 the strength of the Expeditionary Force was 50,000 men, and there were 72,141 admissions to hospital for malaria, with 499 deaths In the Macedonian Expeditionary Force also malaria was a scourge. This force in 1917 consisted of 182,000 men and there were 71,412 admissions to hospital for malaria, with 228 deaths The bulk of the cases, namely 60,977, occurred during the period of seven months, May to November, which in the Balkans is the malaria season In Equatorial Africa the malaria season may be said to extend the whole year round Very heavy losses from malaria were also sustained in Macedonia by the French and Italian forces

---

[1] Killick, E M., Cowell, E M, and Crowden, G P, *Lancet*, Oct 21, p. 897.

What were the prophylactic measures taken during the Ethiopian campaign? With the troops continuously on the move and the area of operations being enormously extended, mechanical prophylaxis, such as mosquito nets, and anti larval measures were often impossible From the beginning we insisted on quinine prophylaxis every soldier received 3 tablets a day of quinine sulphate or bihydrochloride—each tablet containing 0 2 g (gr 3)—and took them, good example being given to the ranks by those in authority at every meal the Commander in-Chief in Somalia, Marshal Graziani, and all his staff officers took quinine regularly The men also knew that we could find out whether they had taken quinine or not They were frequently paraded and 1 in every 10 or 20 men was made to pass urine This was tested with Tanret's reagent on adding a few drops of this reagent, if quinine has been taken, the urine becomes turbid, if quinine has not been taken the urine remains clear

Quinine prophylaxis is, of course, a clinical prophylaxis It does not prevent infection but prevents the clinical manifestations of the disease The soldier may harbour the malaria parasite, but feels well and is fit to do his work, and this is most important from a military point of view

I am, Sir, yours faithfully,
ALDO CASTELLANI

London School of Hygiene and Tropical Medicine Oct 31

TREATMENT OF VENEREAL DISEASES IN THE FIELD

SIR—I am not in disagreement with the letter in THE LANCET of Nov 4 by Dr Lloyd and Dr Erskine A reference to my letter of Oct 28 will show that my words were "The following routine, which has proved so successful at Whitechapel Clinic, can just as efficiently be carried out in the field" I did not say that the Whitechapel routine is the best—I merely stated what that routine is Since the experience in the V D department at Guy's Hospital is that equally successful results in gonorrhœa can be obtained with a considerably lower total dosage of M & B 693, then it naturally follows that such a dosage should be adopted The sole object of my letter was to show that the most thorough modern treatment for V D can be carried out under active service conditions If it is shown that a dosage of even less than 15 g in five days secures satisfactory results, so much the better

I am Sir, yours faithfully,
F T BURKE,

Nov 6   Director L C C (Whitechapel) Clinic

EVACUATION AND EDUCATION

SIR,—The mass uprooting of countless numbers of children and their forced transplanting into untried surroundings has turned the searchlight on educational methods The training in the three Rs is an acknowledged adjunct to civilisation while controversy rages over the best route to literacy There is no question as to the best route for the physical side That must be in the training of the individual, but that is not in the purview of the authorities although it is of so much greater importance It is left to the idiosyncrasy and enterprise of the teacher The seriousness of this lack has now been thrust into focus and cannot be ignored General well being is relegated to the public health departments whose powers are limited to what can be done for the multitude as a whole leaving the individual to the mercy of his own instincts and to take his chance of outside help like the animals The school medical services do not fill the gap Their function is to seek out defects without any direct means of dealing with them nor of preventing them The time that can be allowed for each child is sufficient for little more than a cursory scrutiny of any single case

Personal hygiene is not on the syllabus of the training colleges It follows that it is not to be found in the curricula of the schools. Many parents realise that it is a subject that is ignored and take no responsibility The correspondence in the press is revealing a widespread lack of knowledge of, for example dealing with waste, whether from the lungs, the alimentary canal the kidneys or the skin The habits of the human parasites are a no-man's-land although they are the cause of untold suffering and disease in all crowded communities National fitness cannot be attained unless the foundations of personal hygiene are laid in the early days of infancy by parents who in their turn have received instruction in their school days When school days are over and scattering begins the opportunity is lost for ever for the majority, and the ship goes off without a rudder

In a recent number of THE LANCET the Indian Red Cross is mentioned as having financed lectures on blindness and its prevention The need for such is here with us, and not only for blindness but for deafness and for many other preventable ailments The chief cause of deafness is known to be mouth breathing and the nasal neglect that accompanies it It appears likely that the chief cause of eye trouble is the same, since the interocular space is apt to be involved with the rest of the nasal passages. Gapers in glasses are to be seen everywhere showing the close connexion between the eyes and the upper airways These are but two of the disastrous results of ignorance of the correct care of the breathing organs Many troubles arise from lack of care of the other organs which might be kept in good going order if good habits were established during childhood

I am, Sir, yours faithfully,

Wimpole Street W 1 Oct 23   OCTAVIA LEWIN

PLIGHT OF THE NEWLY QUALIFIED

SIR,—You have lately published letters from medical students setting forth some of their grievances against the emergency arrangements for medical education May I draw attention to the position of the recently qualified man? I believe my own case to be typical of many I registered with the B M A for war service when war broke out, a few months after I had qualified and before I had secured a hospital appointment My name was placed on the list of applicants for commissions in the Royal Naval Medical Service but soon afterwards I was informed that it was likely to be "some time" before I was called on The advertised vacancies for house-surgeons or physicians where previous hospital experience is not demanded, now number on an average only three a week, and it is hardly surprising that my efforts to secure one until the Navy requires my services have so far been unsuccessful, for I understand that there are between 50 and 60 applicants for each vacancy

If this state of affairs is general why are students to be enabled to qualify more quickly than in peace time, so as to increase the output of doctors? The assumption appears to be that more doctors are required in war time than in peace whereas at present at any rate the reverse is true Is the growing body of unemployed doctors to wait until mass air raids on our cities and large-scale land and sea operations have created vacancies in the Services and civilian hospital staffs? And if so, how are its members to live in the meantime? Many parents have sacrificed for years to allow their sons to qualify as doctors, in the belief that qualification meant an end to their sacrifice are they now to continue to support them, while the knowledge they have acquired is put to no use?

THE LANCET of Oct 21 quotes a Soviet delegate to the cancer congress at the New York World's Fair as saying that in the U.S S R. "a position is immediately found for every graduate by the government." Whatever one's views on the Soviet system in general, one cannot help regarding this particular feature of it with envy.

I am, Sir, yours faithfully,

Oct. 31. UNEMPLOYED

SIR,—In two recent articles in THE LANCET the writers seem distressed that house-officers are at last being paid a living-wage. One suggests that all a house-officer needs is enough to pay for his clothes and an occasional hair-cut; the other is a little more generous in suggesting £150 per annum Before he is qualified he is relieved of considerable sums as exam fees, and after he is qualified he is to be paid less than a stretcher-bearer He, at least, won't be a war profiteer.

I am, Sir, yours faithfully,

Forest Hill, S E. 23, Nov. 2. D. MACDONALD.

CONSTRUCTIVE BIRTH CONTROL

SIR,—In your issue of Oct 28 you report that in the House of Commons Mr. Williams said. "I never thought I should live long enough to find that the three Service departments and the Treasury had become the greatest advocates of the Marie Stopes theory." In justice to myself, may I point out that the "Marie Stopes theory" was published in 1918, when, in "Wise Parenthood," I said. "I urge young couples who truly love, to have all the children to whom they can give health and beauty, even if by doing so they sacrifice their personal luxuries." This has consistently been the policy of my clinics for constructive birth control, and the nation owes to me many thousands of babies born in health and beauty who would otherwise not have come into existence

I am, Sir, yours faithfully,

Dorking, Surrey, Nov 1 MARIE C STOPES.

POITRINAIRE'S ERROR

SIR,—In view of Dr A. S M MacGregor's letter in your last issue, I want to offer my most sincere apologies to Glasgow for the suggestion in my "Grains and Scruples" of Oct 21, that her surgeons were lagging behind in chest surgery. I was led to make the statement from a conversation I had with a young Glasgow surgeon, but obviously I misinterpreted the position It is good to know that Glasgow is, as usual, in the vanguard of surgical advances.

I am, Sir, yours faithfully,

Nov. 4 A POITRINAIRE

The Royal Society has awarded the Copley medal to Prof. THOMAS HUNT MORGAN for his work on genetics and evolution The establishment of the chromosome theory by the brilliant school which he founded was a work of genius Today he is still actively researching, and he can contemplate the successes of his pupils and a host of his pupils' pupils. he can see innumerable and fruitful applications in the breeding of plants and animals, and even beginnings in the betterment of man himself

. . . . IN ENGLAND—NOW

(FROM OUR PERIPATETIC CORRESPONDENTS)

THE identity of a voluntary hospital is a curious thing—something allied to the tradition of an old family or the spirit of a great school. We had thought that it existed in the past by virtue of the continuity of its personnel and of its work. We have now learnt that it can continue to exist and to fight gamely for its continuity in the absence of its personnel and in conditions so changed that their logical effect should have been acquiescence in a new order and complete loss of identity. Your special commissioner recently pointed out the value to medicine in the past of the spirit of the voluntary hospitals, and the events of the past few weeks have vindicated this opinion This persistence as an entity in the face of great odds has been most evident among the special hospitals and the story of the ophthalmic hospitals of London during the first two weeks of war well exemplifies this

Many factors contributed to make the ophthalmic services of London at the start of the war an urgent problem. An ophthalmic hospital is usually dealing with a disproportionately large number of outpatients compared with inpatients. Then the extreme urgency of many of the cases, even those of quite minor surgical importance, must be remembered. As one patient put it, "A bit of grit under your upper lid will take your mind off any war!" while from the oculist's point of view a detached retina or an acute glaucoma is a very real emergency. Thus the number of civilian patients requiring immediate treatment alone made it impossible for the ophthalmic hospitals to accept the Ministry of Health's recommendation to close down until suitable ophthalmic units could be formed in the base hospitals. The story of Moorfields is typical.

At the beginning of September the hospital had been as nearly as possible cleared of inpatients and a first-aid post and decontamination station were being set up on the ground floor and a bomb-proof shelter capable of holding 200 persons constructed in the basement. The hospital in common with the rest of the eye hospitals was recommended to close, but within a few hours of the outbreak of war 150 patients had presented themselves for treatment, most of them urgent cases and at least 30 of them new patients. Only two members of an honorary staff of twelve were available, but with these and as many assistants as possible the work was got through A certain number of cases (mainly detached retinæ requiring operation) were admitted and were nursed in the corridors in the centre of the building, out of the way of glass and outside walls The number of outpatients steadily increased until during the third week of the war it reached 382 in a morning, of whom 89 were new patients. This figure is about two-thirds of the normal peace-time attendance It was thus apparent that the hospital must go on, and at a joint meeting of the committee of management and the available members of the medical board it was decided to maintain outpatients with the depleted staff who volunteered for increased hours of duty and a group of reappointed clinical assistants registrars and refractionists; further it was resolved to open 20 per cent. of the beds to urgent cases until adequate protection of the windows made it possible to use more, and to provide a country annexe in which the waiting list (then over 300) of cataracts and non-urgent operations could be worked off This plan was approved by the Ministry of Health The annexe eventually found was a fully equipped privately owned hospital of fifty beds which was secured at a low rental for a year. The total cost of running the main hospital in City Road on this new basis plus the annexe at Edgware worked out at about £15,000 less than the usual peace-time expenditure for a year on City Road alone. The hospital now has 100 beds in use and the waiting-list has been already reduced to 250, while full outpatient services are available, and in addition training of postgraduate students continues

This story of obstinate persistence in the face of theoretical abolition by the Ministry of Health has been repeated at the other London ophthalmic hospitals, though against much greater odds, since not only their surgical staffs but also sometimes their nurses and porters were posted elsewhere Today however all five are open and working with their identity intact The Westminster Ophthalmic Hospital succeeded in remaining open for outpatients from the beginning Now 40 per cent of its beds are in use, including the private wards, its orthoptic and light departments are running, and it has secured the services of a visiting physician An ophthalmic unit staffed by its surgeons and nurses is working in association with Charing Cross Hospital (of which it has always been the ophthalmic department at a base hospital in the country The Royal Eye Hospital has suffered severe losses of staff, and though having only 10 of its 52 beds in use is seeing an average of two thirds of its peace time outpatients—in spite of having only one member of its surgical staff available, though he is working as a full-time officer The Western Ophthalmic Hospital has also remained open continuously and is now running on a peace-time schedule with all its beds open, it is looking for suitable premises for a country annexe for waiting list cases if Marylebone Road becomes inadvisable

The Central London Ophthalmic has suffered most, having lost all but one of its surgeons, its matron, all its nurses, and its porters to the Emergency Medical Service Yet in spite of this paralysing depletion it maintained its outpatient department from the beginning It was unfortunately unable to maintain beds, but every effort is being made to remedy this and we hope to see it successful in the near future Here as in every other eye hospital in London the loyalty of the remaining members of the staff to the spirit of the hospital has been apparent and everywhere retired senior surgeons have returned and volunteered for duty rather than see the continuity of service of their hospitals lapse for a day

* * *

Like most others we in Oxford were dumbfounded when the threat of war became an actuality, but as soon as I recovered from this inhibition—and preparations for massed air attack accelerated this recovery—I told my people to carry on with their ordinary research work and all heads of departments in the medical school spontaneously did the same Very speedily our two axis powers, the Brains Trust and the Pathologists, showed the now familiar symptoms of one of their periodic urges for expansion The Brains Trust saw that it was an ill wind that blows no one any good, and though other people's war aims might be obscure their own was perfectly clear Whatever else the war was fought for, it would accelerate the study of injuries of the central nervous system, and so the somewhat non aryan background of the Nuffield Surgical department was relieved by a sprinkling of khaki and aerial blue Since Australia replaced Denmark at the head of the Pathologists, their party sign has been a genuflexion at the word Research and under an inspiring leader they have already won great spoils from the M R C, the B E C C and the Nuffield Benefaction But their state has a totalitarian vigour of digestion and appetite, and they advance to new projects as Hitler leaps from Czechoslovakia to Poland They have decided that the war will be won by Research, and I have little doubt that they will leave their mark on the national budget. Others hesitated for a moment and toyed with the idea of abandoning their present fruitful researches for some ad hoc war problem, but fortunately better counsels prevailed, and the fundamental work on the vitamins, brain metabolism hormones and neuromuscular transmission continues. The links between neurosurgery and neuro anatomy have been tightened and the biologists have discovered that the healing of nerves is a fascinating subject Clinical medicine, which had been working for the last year on hæmorrhage and shock, and also on nocturnal enuresis, found almost to its surprise that it had become topical and it now shows symptoms of straying into the no man's land of applied psychology ' Yoga has told us that anything can be achieved if we breathe correctly, and anæsthesia is after all the applied physiology of respiration Whatever the reason, the department of anæsthetics has become more hush hush than any of us, though rumour says that its debonair professor has been seen at places as far afield as New York and Lisbon, and we can only hope that he did not meet Olga Pulloffski Whatever happens, babies are born and Professor Moir continues to make his *ingenious models and measurements* *Time will not* permit me to enumerate the numerous distinguished evacuees from home and abroad whom we are sheltering, but I may be forgiven for telling the special honour we feel in offering hospitality to Loewi on the pharmacological side and Trueta on the surgical

Is research flourishing at Oxford ? I hope I have said enough to show that it is Our only fear is that we may be considered twittering scientists, sheltering under the research umbrella Nevertheless this is a great munition factory for discovery and teaching in medicine, and our carefully selected personnel is better employed here than inspecting sore feet or twiddling its thumbs elsewhere There is none of us who is not ready to go to any post for which the Medical Research Council or the Royal Society may consider us better fitted, whether here or abroad Many of us remember the comradeship of the dugout the old women selling lemon soles on the pavements of Doullens, the gas-school way behind the lines with that marvellous dinner of chicken and garden peas, and the stout French hostess who called you Mon petit piccanin As we meander slowly home in the blue darkness of a blacked-out train or day-dream in committee, these are the pictures that flit before our eyes, and we think, God I'd like to get away and have one last patch of excitement before old age says goodbye to all that

* * *

Last time we had a real war and very little preparation This time the war is, to say the least, a little unreal and the preparation is astounding I have just been visiting a military ambulance train and a hospital boat The War Office and the railway and steamship companies have thought not only of the care but also of the comfort of sick and wounded troops Each train has nine coaches, two for the resident staff and seven for the patients The doctors and sisters have a tiny bedroom each formed out of ordinary compartments and mess rooms, while the orderly and kitchen staffs have a coach fitted with bunks and tables for meals The kitchen and stores coach is compact and efficient fitted with cupboards, sinks, and a coke burning range for the cooking The train has its own dispensary and office for keeping records and there are two specially padded compartments for the mentally ill ! The ward coaches, as spick and span as hospital wards have three tiers of beds The middle tier can be let down to make seats for ambulant patients Each coach can take 30 bed patients and 70 or 60 patients who can sit. There is no difference between the comfort of men and officers Meals to suit the time of day are served to the patients as soon as they are on the train, and the quartermaster-sergeant remarked that the call for white bread taxed the resources of the commissariat to the utmost the men not having had white bread since they left England The train is staffed by two doctors, two sisters and twenty N C O's and men of the R A M C

The boats are taken from the cross-Channel services The former staterooms have been removed and the saloon deck has been made into wards for the more seriously ill, while the lower decks have been arranged for ambulant patients, with bunks, tables and chairs . The third-class saloon bar has been transformed into a dressing-room where minor operations can be done, while the first-class dining-saloon has been made into a ward for officers. The ship's galley provides meals for the staff and patients in transit; as on the train the personnel live on the boat. They are all trained in A.R P. work and the steps to be taken in every calamity that can befall a ship at sea; every bed has its lifebelt at hand, and lifebelts for the staff are distributed so that they are instantly available. The beds are swung so that they sway with the movement of the ship, thus giving comparative stillness to the patients

Part of the port accommodation has been taken over by the army authorities, and stores of linen, blankets, food and medical supplies for both trains and boats are kept there. On arrival the patients are carried from the boat into a shed (where the stretchers are placed on trestles) and they are there examined for classification by the five port doctors, three army, one air force and one naval. While the examination is going on, Miss Baxter, known to London's homeless as "The Silver Lady," with a band of voluntary helpers, distributes tea, biscuits and cigarettes among the men A boatload of patients fills two trains, the average time between boat and train being an hour and a half. The patients are under cover practically all the time, the distance between boat and shed, and shed and train, being very short

OBITUARY

HARVEY CUSHING

C P. S writes May I add a small personal tribute to the memory of Harvey Cushing? It was my fortune to meet him first when I was an undergraduate at Oxford, and before I had any thought of medicine as a profession. It was at lunch with Sir William Osler and the talk between them was of books, the air alive with enthusiasm and banter. A servant called Osler out. He returned in a few minutes with a gleam in his eye "Harvey," he said, "you must come—a wonderful case!" Their meal unfinished, off they went like a pair of schoolboys and swept me with them The case was one of obstruction of the subclavian artery by a cervical rib in a lad and I listened for half an hour while they discussed it. For Cushing it illumined a pathological principle—a new light. Osler had all the literature of the subject at his command. I felt as a boy might feel who listened while Drake and Hawkins compared notes of a new landfall

It was several years later that I served for a short time as Cushing's intern at the Peter Bent Brigham I have never worked with any man whose energy and enthusiasm were so radiant It is true that the glow sometimes scorched A rebuke from Cushing direct—or more often implied—blistered. This, however, was felt as stimulus rather than injury by those who knew him It was but evidence of the fire that burned within No feverish heat this but a steady flame, whether in the operating theatre, on ward round or in the post-mortem room Two memories of him in this time stand out. One of a ward round attended by many distinguished visitors, Cushing's interest was suddenly engaged by a small point in a history, and he sat on the bed for half an hour, his audience forgotten, quietly interrogating, patient and intent.

The other is that of a Saturday afternoon in the post-mortem room—a blazing day in August when most chiefs after a far less strenuous work would have been relaxing But Cushing had a problem to solve. A postgraduate student had suggested a diagnosis that was new to him The chief had openly dismissed it. The patient died with symptoms suggesting that this diagnosis was correct The post-mortem proved it so Cushing turned to the student and told him first that the diagnosis had probably been a fluke, second that if it wasn't, here was an opportunity to learn He bade him leave all other work and start on Monday morning to delve into the literature, look into the records for other cases, discuss points of anatomy and pathology with the best informed, nor rest till he had something to report. The student during the week-end reflected that it would be more pleasant to continue his work in the wards for the short period of his stay than stew in a library He appeared on Monday and told the chief he would like to postpone the research until his period of internship was ended I was witness of the scene Cushing turned upon him. "Don't you know," he said, "that the time to start work on a problem is while it is white hot? Do you read German? If not, I have told my secretary to have anything you want translated."

Others have written of his readiness to keep alive in correspondence the spirit of inquiry. I was doubtless one of many who wrote to him two or three times a year of clinical problems I never failed to get a reply, full of interest in my questions and with inspiring news of his own work. When he visited this country he would sometimes dine with a few of the younger neurologists in London and talk late into the night of the untravelled world of medicine and of the explorer's path He was a great leader, and at times a hard taskmaster, but in discussion he never stood on his dignity, never played the elder Like the most junior of us he was fellow student, fellow explorer He was a grand man, and it is good to know that both in this country and in others there burn torches kindled at his flame.

EDWARD PALMER POULTON

M C writes. "Poulton had joined the Emergency Medical Service and was posted to the Kent County Hospital at Pembury, near Tunbridge Wells He appeared happier than many others who were thus transported and had entered with enthusiasm into making a moderate-sized county hospital into a large teaching hospital Probably he was working too hard On Oct 17 he seemed as usual full of energy, but he died suddenly in his sleep early the next morning

"His enthusiasm for research was his greatest and most abiding professional characteristic It was well shown when with members of his family he endowed the Hilda and Ronald Poulton fellowship at Guy's by which a fellow or two students could work in the medical investigation department. His own research started with the physiology of diabetes and ketosis Then from 1920 to 1925 he was continually studying dyspnœa in connexion with the oxygen and carbon-dioxide carriers in the blood and the blood pH. In Addison ward at Guy's an oxygen chamber was installed and this pointed the way for his great interest in oxygen therapy and the use of oxygen tents At the same time he was interested in pain in gastric ulcer and sensation in the œsophagus, he carried out investigations on himself and others by introducing into the œsophagus a balloon which could be distended while the subject was under X-ray observation The mechanical side of any investigation always made a great appeal to him, and much of his later work was concerned with developing apparatus, such as positive-pressure machines and oxygen tents Although his earlier tents were extremely complicated in appearance, the final version was a neat and beautiful piece of apparatus.

"Poulton had many qualities which endeared him to his friends, especially his courage and enthusiasm, his simplicity and honesty, and his kindliness and gentleness As a young man, he was above the average at most games and at Oxford played for the university hockey XI, this must have made the chance discovery that he had heart disease all the more of a blow, as it was the end of any really active part in games Although he must have been aware of the danger of dying suddenly, owing to his heart affection, I never heard any complaint, and it was his wife who had to try and see that he got some of the extra rest that was needed His regular hospital duties, his research work, his books, and his many societies and meetings show how little he let his health stand in his way In recent years he spent much time with the affairs of the League of Nations Union, of which he was a keen supporter Everyone liked Poulton and even when they differed from him about some point of hospital policy they always knew his radicalism was due to his enthusiasm for what he thought best and that there was no hidden or ulterior motive"

Dr Alfred Landale Clark, who died from the results of a motor accident in the dark on Nov 5, will be missed by a host of friends who knew him for his devotion to duty, keen sense in things medical, great musical talents, and above all, his kindly attitude to all from the highest to the lowest in the land No man, writes N B W, ever heard Dr Clark belittle anyone, and a mean act or utterance was completely foreign to his nature As an Edinburgh man he will be long remembered for his magnificent voice He was for over ten years secretary of the Edinburgh University Club of London and he was a founder of the Scottish Medical Golfers' Society The loss of his former partner, Dr Brunton Blaikie, left him with great responsibilities and these he carried with surprising ease

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By Medicus, M P

The House is now sitting regularly on Tuesday, Wednesday and Thursday, and there is talk of this session coming to an end at the end of November and of a new session, with a King's Speech, being inaugurated within a few days There is the prospect of a break at Christmas time, although it is not impossible for the House to sit then if any emergency should require it Meanwhile the private member is doing well Mr Dingle Foot on Tuesday last made some very effective criticisms of the powers conferred on the Home Secretary under the Emergency Powers Defence Act which led to an offer by Sir Samuel Hoare to introduce an amended set of regulations after consultation with the Liberal and Labour oppositions It was a remarkable personal achievement and a remarkable victory for democratic common sense On Wednesday Mr Kenneth Lindsay, parliamentary secretary to the Board of Education, announced that the schools in the towns were to be reopened but did not explain that as more than half of them have been requisitioned for first aid posts or other purposes of civil defence the accommodation will be very limited This reopening of town schools coupled with the demand for a payment by parents for evacuated children controlled by a means test is thought likely to have the effect of bringing back children in large numbers from the country If there are "serious air raids" the schools are to be closed Sir William Davison said that this change of policy was "likely to cause a rush back" of children, but Mr Kenneth Lindsay replied that it provided no justification for parents bringing their children back from the reception areas But combined with the coming of Christmas it will probably have that effect Nevertheless steps are now to be taken to provide school medical and nursing services and other public health services in the reception areas on a larger scale than already exist there

* * *

It is an unfortunate fact that up to about 80 per cent of the nursing staff of the various public health services have left their ordinary work in the towns and enlisted as first aid workers at first aid posts, mobile units or in hospitals These nurses can all be replaced in the casualty services by nurses already on the lists of the Civil Nursing Reserve and it was strongly suggested in the debate that this course should be taken With schools in the towns reopening and winter coming on in the country the need of the school nurses in town and country will be great Mr Walter Elliott in a very interesting résumé of the state of evacuation to date, laid great stress on the fact that epidemics in September and October of 1939 were actually (on the whole) less than in 1938 It is true that healthier country conditions may have something to do with this, but it is also probable that the more favourable weather of 1939 was also a factor

Mr Elliott said that many of the children in the reception areas had taken root in the country, and he appeared to anticipate that a large number of them would remain there permanently, at least during the war Nevertheless they will only so remain if the conditions are and remain good and, as one member said, every effort should be made now to perfect and improve the conditions in the schools and the reception areas and the conditions of living in these areas of the evacuated children so as to set up a natural attraction to the country and to provide good conditions which will be available if and when another big rush of evacuation takes place after the bombing of cities In view of this possibility, it might be thought that the Government would take compulsory powers to keep children in the country when they have once been taken there and paid for at Government charge But this Government does not like doing anything compulsorily if it can be arranged with administrative officials to do without compulsion Just as the Minister of Food shies at rationing, although informed opinion considers that rationing would be the fair way of securing an equal distribution of food, so the home defence authorities shy at compulsory evacuation British freedom includes not only the right to get drunk but the right to get bombed—and no doubt the right to grouse about it afterwards in the case of those alive to *do so*

* * *

On Wednesday the House discussed a Labour motion urging "an immediate improvement in the position of old age pensioners" That the position of the aged are inadequate in the present time of rising prices and that they are likely to prove still less adequate as prices continue upwards, is a proposition very difficult to combat. The Government did not try; they tried to side-track it by the usual method of proposing an "investigation" of the subject. In this case however the investigation is to be a real and, what is more important, a speedy one An investigation into the conditions of old-age pensioners did indeed begin during last summer, and we may be sure there is already a good deal of information available in the files of the Government department. The inquirers should therefore be able to report by the end of the year if not for Christmas Some prices have gone up very greatly in the last few months and a rise in the price of sugar, coal and gas alone is a serious item in an old-age pensioner's budget.

Pensions are of two kinds, contributory and non-contributory. An increase in contributory pensions depends on the willingness of workers to pay an additional sum on their cards every week. This the workers, speaking through their representatives here, now agreed to do and it is probable the employers will follow suit. In this case Sir John Simon announced that the state would probably also increase its contribution and that matter would be settled for the future, although any immediate increase of pensions would fall on and be met out of state funds Any increase of non-contributory pensions, however, must fall wholly on the state, and the Government appear to think that this should in some way be met out of public assistance funds If the idea behind this is that the increase in amount is temporary it had better be dropped. Any increase in old-age pensions now is likely to be permanent

The pensions debate was another example of the new non-party character of Parliament On a matter of this social kind members of all parties were enabled to unite in attacking the Government and even the Government hardly resented it.

FROM THE PRESS GALLERY

Evacuation Problems

In a debate on evacuation in the Lords on Nov 1, the BISHOP OF WINCHESTER said that while he believed the Government were right in evacuating children the evacuation of mothers with their children had been a failure. A large number of these mothers had now returned to the towns. It was quite natural that the women should desire to return to their husbands, and if there was another evacuation, perhaps on a larger scale, no attempt should be made to encourage the women to leave their husbands. Of course, expectant mothers ought to be removed to safety areas, but only for a period. The younger children ought also to be removed, but their case should be met by hostels and trained workers and by nursery schools. The ARCHBISHOP OF CANTERBURY said there was urgent need for medical officers of health to provide special hospitals as sick bays to which evacuated children who were ill or infected could be removed. It was quite impossible for small households, already overcrowded, to deal with sickness One of the gravest problems was the break-up not only of school life but also of family life. This was all very well for a short time, but what would happen if it went on for a year or two? He did not suggest that the great system of precautions which have been built up should in any serious way be affected, but he did ask whether it might not be too elaborate, out of proportion to the reality of the danger and to the other needs of the community.

Viscount DAWSON OF PENN thought that the basic reason for the difficulty in bringing about a complete evacuation was the fundamental instinct of human nature—the homing instinct. This could not be cut through by any legislation and it would operate most in mothers with children under five. The conclusion was irresistible that no evacuation would ever be more than partial. But that did not mean that the policy of evacuation must be abandoned; far from it. By concentrating on the quality of the work done for a smaller number of evacuees they would get a result which would more than compensate for the loss of the larger number. They could not divide the questions of education and health. He trembled to think what the consequences would be in these winter months if 250,000 children were to go on drifting about London doing nothing during their school hours. Not only that, but they must face that the welfare and hospital services had been reduced to mere skeletons; babies were not looked after as they were in peace-time; and school medical services were worked at half-speed. While they could afford to shut the big hospitals for a short time, they could not afford, except in circumstances which were very urgent indeed, to keep them closed any longer. A time when there would be a great deal of infectious sickness was approaching. This year there was reason to fear that they might get the height of the cycle of measles, and if measles came they might get diseases like diphtheria. A severe outbreak of influenza in one of these overcrowded communities might present a terrible problem. Under conditions of anxiety, such as the nation was going through now, the resisting power of the community was lower and demanded greater care and caution than in peace. It might have been necessary to close down the big hospitals in London for a short period, but he would open them again forthwith with certain limitations which would fit them for the special duties and special dangers they had to meet. If a third of each hospital were set aside for casualties and the remaining two-thirds restored to peace-time work, and if there were special facilities for evacuating into a hospital near by—not at all difficult to arrange—he believed that that proposition was quite practicable The emergency medical service had a task of vast difficulty in setting up a number of hospitals adapted for all sorts of purposes and it had done wonderful work. But hospitals were not built in a day. A big hospital was not merely an assemblage of bricks and mortar—it was a great living organism—and they could not uproot it in the way that was being done without incurring grave results. Without further delay these big hospitals should be opened, medical education should be restored, and the training of nurses resumed.

Earl DE LA WARR, President of the Board of Education, said that they had all got to admit that this was a second-best scheme; that the right place for the children was in their homes and schools in the towns. The question of nursery schools was under the careful consideration of himself and the Minister of Health. For some weeks no child had been evacuated who had not been thoroughly medically examined, and in no case would a child be evacuated in future until it had been cured of such diseases as scabies. To get all the remaining children out of the vulnerable areas would mean compulsion and except in the most extreme circumstances no-one would desire to adopt such a measure. The Government were therefore driven back on the reopening of schools in the vulnerable areas. This, however, should not be taken as an "all clear" signal. The Government had been influenced solely by the fact that they could not afford to let 750,000 children grow up without education, school discipline or medical care.

DEBATE IN THE COMMONS

In a review of evacuation in the House of Commons on Nov. 2, Mr. WALTER ELLIOT said that the actual movement covered 750,000 unaccompanied school-children, 542,000 mothers and young children, 12,000 expectant mothers and 77,000 others About 50 per cent. of the mothers and others who were evacuated and about 78 per cent of the unaccompanied school-children were still in the reception areas. The efficiency of the health services could be estimated from the vital statistics Returns of the incidence of infectious diseases in the reception areas were now available for the first two months since the outbreak of war There has been no such increase as was feared Indeed, the figures for the "fevers" were actually lower than for the corresponding period of 1938 That was a very fine result

Mr TOMLINSON Is the right hon gentleman aware of any district in which rather than lose the payment for billeting, children are being kept in the homes to which they have been evacuated and not sent to the hospitals that had been provided?

Mr ELLIOT No, Sir, I am not aware of that, and I should be surprised if it were taking place on any large scale—certainly on any scale sufficient to vitiate the figures which I am about to give to the House I am dealing with notifiable diseases for which medical men receive a fee for notification It is not merely a matter of goodwill on one side or the other The doctors are paid to carry out this work and they receive a fee for notification

Mr TOMLINSON Perhaps the Minister has overlooked the fee for attendance if the patients remain at home

Mr ELLIOT said that any doctor who did not isolate cases of cerebrospinal fever, infantile paralysis, enteric fever, diphtheria and other diseases he (Mr Elliot) was talking about would be guilty of the greatest negligence The doctor might, indeed, find himself open to a much more serious charge He (Mr Elliot) did not want to over emphasise these cases, because it had been a sunny and healthy autumn and these figures must be considered with all due reserve But it was remarkable that in the two months of this great migration the nation actually had less epidemic disease than in two corresponding months of full peace

Mr Elliot then gave the following comparative figures for last year and this

	7 weeks to Oct 21	
	1938	1939
Diphtheria	9960	7637
Enteric fever	284	437
Pneumonia	4365	3268
Cerebrospinal fever	141	177
Poliomyelitis	644	207

The *same conclusion was, he said, borne out by an* examination of the maternity problem To move nearly 12,000 expectant mothers, still more to carry through childbirth with a scratch nursing personnel and improvised accommodation, was an anxious task In the 105 or so maternity homes, comprising 1500 beds which were improvised in the reception areas, over 3500 confinements took place in the first six weeks of war The proportion of complicated cases had been no higher than normal The incidence of puerperal fever and puerperal pyrexia up to the week ending Oct 21 showed no increase over 1938

The Ministry of Health had authorised the provision of accommodation in separate houses for children suffering from minor illnesses, or convalescent from more serious illnesses who could not properly be cared for in billets In many areas women's voluntary services had expressed their readiness to help with the staffing of the houses When the receiving district authority agreed, the county council would be responsible for providing and maintaining the sick bay The establishment of sick bays for minor illness required careful medical control It was important that each case should be admitted only on the recommendation of a medical practitioner, that the practitioner should continue to attend regularly at the sick bay, and that the staff should include at least one trained nurse It was not possible to give figures for the whole country showing how much additional sick bay and isolation accommodation for non notifiable infectious diseases had been provided but he had some specimen figures which showed that for a total evacuated population of about 383 000, about 800 beds were being provided for non notifiable infectious diseases and about another 800 beds for minor illnesses If the same proportion persisted throughout the whole country something like 2500 beds had been provided for non-notifiable infectious diseases and about the same number for cases of minor illness—a total of some 5000 beds in all The present arrangements provided for the compulsory notification of scarlet fever but not measles This was not a scarlet fever year, but a measles year Consequently they had made both measles and whooping-cough compulsorily notifiable Thus local authorities would know at once wherever an epidemic threatened and would be able to take the necessary measures promptly Beds in the emergency hospital scheme would be available, if necessary, to deal with calls for extra beds for cases which the existing infectious diseases hospitals were not capable of accommodating

Dr HADEN GUEST confessed that the statement in regard to evacuation was more favourable than he expected Taking people away from the scenes of bombing avoided unnecessary casualties which would overcrowd hospitals and *make* first-aid work extremely difficult But, perhaps more important than anything else, evacuation saved the younger generation from suffering war shock, from which the child population might take longer to recover than from an ordinary wound There was urgent need for improved welfare services in the reception areas—especially medical and nursing services It would be a valuable step to bring all public health trained nurses back to their public-health work especially those who were engaged in the schools, in view of the fact that they could be replaced in the first aid posts There seemed no reason why the nursing and medical services required for school work should not be reinstituted in the towns, and why those not required in the towns should not be lent to the reception areas

Sir FRANCIS FREMANTLE said that the Minister of Health had skipped rather lightly over the difficulties in regard to winter diseases It had always been the regular understanding in the public-health service that one should not made a disease notifiable unless there were means of dealing with it by nursing or isolation or both The Minister did not say that he hoped to be able to provide isolation in the new treatment hospitals As far as he knew it would be impossible to isolate and deal with an epidemic of whooping-cough or measles in any area in his part of the country

Mr HERBERT MORRISON said that he was told that a grave difficulty was arising in regard to hospital supplies, particularly surgical instruments The Surgical Instruments Manufacturers Association had agreed that 90 per cent of their output should be allocated to the War Office for military purposes How the hospitals of the country—voluntary and municipal—would get their share out of the remaining 10 per cent he did not know

QUESTION TIME

Tuberculous Persons and Evacuation

Mr [illegible] asked the Minister of Health whether advice had been tendered to billeting authorities by his department on the undesirability of billeting evacuated persons especially children in houses in which a patient recently discharged from a tuberculosis sanatorium lived —Mr ELLIOT replied I recently made it clear to a conference of representatives of the voluntary organisations for the prevention and cure of tuberculosis and of medical officers of health that patients in the infective stages of tuberculosis who had been inadvertently discharged from sanatoria at the outbreak of war should be sought out and brought back for treatment I have no reason to believe that billeting officers are not alive to the point made by the hon. member

Rationing

Replying to Mr A V ALEXANDER Mr W S MORRISON, Chancellor of the Duchy of Lancaster, announced that the Government had decided to take the necessary steps to enable the rationing of individual consumers to be put into operation There were, however, only two commodities —namely, bacon and butter—which the Government considered it necessary to ration, and even with these it was not proposed to begin rationing before the middle of next month The actual date would be announced later The amount of the ration would depend on the supply position from time to time Provided that imports continued at the present rate, as there was good reason for assuming they would, the ration for both bacon and butter would be 4 oz per week There was no need to impose rationing for any other commodity The manufacture of margarine had been greatly increased since the outbreak of war, the quantity of cooking fats available was equal to normal, and adequate supplies of meat should continue to be available As regards sugar, if each consumer restricted purchases to 1 lb per head per week there would be sufficient supplies for some months for every home as well as for manufacturers, hotels, and restaurants without need of rationing In the meantime it was important not to waste food

Emergency Medical Service

Sir **ERNEST GRAHAM-LITTLE** asked how many members of the visiting staffs of the voluntary hospitals in London had enrolled to date under emergency conditions in the categories enumerated by him—namely, whole-time service, whole-time service with indefinite leave without pay, service with option to transfer from whole-time to part-time on conditions formulated in the Ministry circular, dated Sept 18, and voluntary enrolment with the Ministry—directly; whether he was aware of the inadequacy of the offers at present made, and whether he had in contemplation any proposals more acceptable as regarded remuneration and opportunities for continuing some measure of hospital and private practice—Mr **ELLIOT** replied The number of specialists and senior members enrolled in the Emergency Medical Service who reported for whole-time service in the London sectors and who are for the most part on the visiting staffs of the London voluntary hospitals is 656 Of these 17 are on indefinite leave without pay and 5 have transferred to part-time So far there has been one offer of service without obligation As I stated last Wednesday and Thursday, the whole question has been under consideration by a special committee, which includes the presidents of the three Royal Colleges and which was set up on Oct 18 I learned yesterday that this committee have now formulated their recommendations, which they are coming to discuss with me tomorrow

Sir E **GRAHAM-LITTLE**. Does the right hon. gentleman realise how very mischievous is the uncertainty of the position for these voluntary hospitals, and as only 25 per cent of the members of these staffs have applied for part-time service, is it not obvious that other means should be adopted ?—Mr **ELLIOT**. It is for that reason that I have given the utmost urgency of consideration to the recommendations brought forward by the body which I have just mentioned

Summer-time

Replying to Mr. **VYVYAN ADAMS**, Sir **JOHN ANDERSON** announced that under the Summer Time Acts the date for the introduction of summer-time next year would be April 21. The question of an earlier date would be considered in due course

MEDICAL NEWS

University of Oxford

In a congregation held on Oct 31 it was resolved that in Hilary Term, 1940, the Radcliffe travelling fellowship, the Christopher Welch scholarships and the Rolleston memorial prize should be suspended.

University of Cambridge

On Nov. 4 the following degrees were conferred:

M D—G. D. Hadley (by proxy)
M.B., B.Chir—W H St John-Brooks, Herbert Curtis, J S. H Wade, G C Smith

Royal College of Physicians of London

The next examination for the membership of the college will be held on Jan 3. Further particulars will be found in our advertisement columns.

Naval Medical Compassionate Fund

At the quarterly meeting of the directors of this fund, with Surgeon Vice-Admiral Sir Percival Nicholls in the chair, the sum of £149 was voted to the applicants whose cases were considered.

Royal Society

At 2.30 P.M on Thursday, Nov 16, Prof. J H. Gray, F R S, will deliver a Croonian lecture to this society at the zoological department, Downing Street, Cambridge He will speak on aspects of animal locomotion.

Radcliffe Infirmary, Oxford

The quota of foreign refugee doctors at this hospital is now full, and no further applications can be considered at present

Ministry of Health

Miss E. M R Russell-Smith and Miss E A. Sharp have been appointed assistant secretaries (acting) of the Ministry of Health.

National Hospital, Queen Square

The notice that the hours of the outpatient department at this hospital have been altered has resulted in an increased number of attendances Patients should, if possible, come on Monday, Tuesday, Wednesday, Thursday and Friday at 9 30 A M In certain circumstances some patients can be seen up to noon

Fellowship for Medical Research

Particulars will be found in our advertisement columns of the Kirk Duncanson fellowship for medical research which is offered by the council of the Royal College of Physicians of Edinburgh The value of the fellowship for the first year will be £350 and applications should be sent to the secretary of the college not later than Jan 25.

Institute for the Scientific Treatment of Delinquency

It has now been found practicable to reopen the clinic at 8, Portman Street, W.1, where applications may be made either by letter or telephone to the secretary. For the present the work of the clinic must be restricted to diagnosis and advice (including social work and disposal), but the directors are trying to arrange for psychological treatment to be carried out in central London. Arrangements are also being made to carry out diagnosis and treatment in certain districts outside London

Scottish Conjoint Board

At recent examinations of the Royal Colleges of Physicians and Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow, the following were successful.—

L R C P. & S.E, L R F.P S G

Louis Abel, J D Addison, Moe Ashpis, Elizabeth N. G Baker, L. A. Bornstein, R P Boyd, Arnold Breecker, J C L Cameron C M Chambers, A D Chisholm, G A M Cowie, Harry Cohen. S Dz Cudjoe, Robert Dalrymple, Israel Diamond, C C B Doherty, H Du T. Du Toit, Otto Eisert, Edwin Emma I. G Ermshar, Abraham Fink, M C K Finlayson, Sidney Fox, Leo Gitman, Alexander Glassman, L. L Goldberg M M Goldenkranz, Seymour Gudis, G R. Jones, A J Kaplan L A Kaplan, E W Langs, R B Lenora, Israel Levinson, Marcus McAlley, S N Mandel, Meyer Mariaskin, R J Mehr, Alfred Michelson, Jean Middlemiss, R A Morrison, John Morton, R S Morton J H Murray, M N. A Nasir, W C Pilgrim, Eli Pravda, H M. Pretorius M R. Rapoport S W Rubin Thomas Russell, D R Sandison, K S Seal, D M Simpson, Leon Singer, D R. Skudowitz, T M. Small George Smith C. B Storch, A M. Tawfic, M H. Tischler, E M. Webster and Alex Weiss

The following graduates of recognised foreign universities have also been admitted licentiates:—

Joseph Adler, E J Billigheimer, Josef Brand, K F Hirsch, Erich Horowitz Richard Hurwitz, Emanuel Schleyer W. Th Strauss Rudolf Treu, Alfred Vogl and Werner Worms

Universities Parliamentary Committee

A parliamentary committee of representatives of the universities in Parliament has been formed under the chairmanship of Sir Ernest Graham Little The committee will meet from time to time to discuss subjects affecting the universities and education generally At the first meeting items discussed were legislation for the conduct of universities during the war, the commandeering by Government departments of buildings used for educational purposes, and the calling up under the National Service Act of students at universities and training colleges nearing important examinations

Emergency Medical Service

On Nov 4 Mr Walter Elliot, Sir George Chrystal and Dr Hebb discussed with representatives of the advisory committee set up by the Central Medical War Committee their recommendations for the reorganisation of the Emergency Medical Service The main objects of these recommendations are to release consultants and other senior members of the medical profession from their whole time obligations in the Service, so that they may be free to attend to the needs of the civilian sick and to their normal duties in the medical schools, while remaining available on a part time basis for casualty work

Course in Psychological Medicine

The annual course of lectures and practical instruction for a diploma in psychological medicine, held at the Maudsley Hospital, Denmark Hill, S E 5, under the auspices of the London County Council and the University of London, will begin as usual on Jan 1 War conditions will necessitate some alterations in arrangements, but the clinical instruction necessary to satisfy the requirements of the various examining bodies will be provided Further information may be had from the honorary director of the medical school, the Central Pathological Laboratory, West Park Hospital, Epsom, Surrey

British Institute of Philosophy

A special series of public addresses on the deeper causes of the war and the issues involved in it will be given in the Assembly Hall of the Royal Empire Society Craven Street Strand W C 2 at 2 P M on Thursdays, beginning on Nov 16 The first four speakers will be Prof W G S Adams, warden of All Souls College Oxford Prof Gilbert Murray, formerly regius professor of Greek in the University of Oxford, Viscount Samuel and the Very Rev W R Matthews, dean of St Paul's Tickets may be had from the director of studies of the institute, University Hall, 14 Gordon Square, London, W C 1

For Australian Soldiers

The Prime Minister of Australia has accepted Lord Stradbroke's offer of Henham Hall Wangford, Suffolk, as a convalescent home for Australians

London Clinic of Psycho-analysis

The absorption of psychiatrists by official emergency organisations has led to an increasing need for psychological guidance and treatment for those who are suffering from nervous crises brought on by the war To meet this need the London Clinic of Psycho analysis (96, Gloucester Place W 1) has organised a temporary psychological aid centre which opened on Nov 3 Three units have been arranged to provide advisory consultations and short emergency treatments on Mondays at 2 P M Wednesdays at 3 P M and Fridays at 2 P M The ordinary psycho analytical routine of the clinic will not be affected by this auxiliary service Analytical treatments will be carried on as before and analytical consultations will be given at the usual time (each Tuesday at 5 P M) If necessary emergency treatments will also be provided on this day The Clinic is making no charges for its emergency guidance and treatment It is a sign of the times that the clinic is prepared to depart from its classical technique of psycho analysis It is hoped that many of the temporary crises will be of a kind that can be alleviated by one consultation but under the emergency scheme as many as 12 treatments spread over 4 weeks may be given

Maida Vale Hospital for Nervous Disease, London

From Monday, Nov 13 the outpatient department of this hospital will be open daily at 7 30 A.M instead of at 1 45 P M

Rations for Diabetics

The Medical Advisory Committee of the Diabetic Association have agreed that diabetics require 70 grammes of protein and 100 grammes of fat a day as a desirable minimum in most cases, and the rationing authorities have been asked to sanction this amount In the last war there were no special rations for diabetics, but the diet adopted is now as a rule very different from what was usual then

Medical Diary

Week beginning November 13

ROYAL SOCIETY OF MEDICINE, 1 WIMPOLE STREET W 1

TUESDAY

Psychiatry, 2 15 P M , meeting in honour of Sigmund Freud Dr Ernest Jones Prof E Mapother and Prof Millais Culpin will speak

FRIDAY

Physical Medicine 2 30 P M , Dr J B Mennell Foot-gear (Presidential address)

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE 26 PORTLAND PLACE W 1

THURSDAY

4 P M Prof P A Buxton The Louse—Present Knowledge and Future Work

MEDICAL SOCIETY OF LONDON, 11, CHANDOS STREET W 1

THURSDAY

3 P M Sir Robert Hutchison Medical Literature (David Lloyd Roberts lecture)

PADDINGTON MEDICAL SOCIETY

TUESDAY

2 30 P M (St Mary's Hospital W 2) discussion on Present Conditions of Medical Practice

BRITISH POSTGRADUATE MEDICAL SCHOOL

DAILY

10 A M –4 P M Medical clinics surgical clinics and operations obstetrical and gynæcological clinics and operations
1 30–2 P M Postmortem demonstration

MONDAY

2 30 P M , Lord Horder Ward clinic

WEDNESDAY

11 30 A M , Clinical pathological conference (medical) 2 30 P M Clinical pathological conference (surgical)

THURSDAY

2–4 P M Dr Duncan White Radiological conference

FRIDAY

2 P M Clinical pathological conference (gynæcological)

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT 21, 1939

Notifications—The following cases of infectious disease were notified during the week Smallpox, 0, scarlet fever, 1336 diphtheria 975; enteric fever 31 pneumonia (primary or influenzal), 103, puerperal pyrexia, 150 cerebrospinal fever, 161; poliomyelitis, 37, polio-encephalitis 3, encephalitis lethargica, 1, relapsing fever, 1 (Chelsea) dysentery, 62 ophthalmia neonatorum, 74 No case of cholera plague or typhus fever was notified during the week

Deaths—In 120 great towns, including London there was no death from smallpox or scarlet fever, 1(0) from measles 2 (0) from scarlet fever 5 (1) from whooping-cough 22 (0) from diphtheria, 31 (0) from diarrhœa and enteritis under two years, and 2 (3) from influenza The figures in parentheses are those for London itself

Birmingham had 2 deaths from whooping-cough [illegible] Fatal cases of diphtheria were scattered over 16 great towns [illegible] reporting 3 [illegible] each 2 [illegible] attributes 3 deaths to influenza [illegible] deaths from diarrhœa

THE RISING TIDE OF ABORTIONS IN FINLAND

Dr. A. Apajalahti of Helsingfors has some disquieting information to give concerning the increasing frequency of induced abortions in Finland (*Nord. Med.* Sept. 30, 1939, p. 2943). In the Helsingfors hospitals 26,491 cases of abortion were treated in the period 1901–37, of which 21,007 came from the city itself. At the beginning of this century about 1 9 abortions were treated in these hospitals per 1000 women living in Helsingfors between the ages 15–50 This ratio rose to 12 5 per 1,000 in the course of 35 years The rise may of course mean that a greater proportion of cases now come to hospital, but it must also depend on a large increase in the abortion-rate itself. In 1900 the birth-rate was 29 8 per 1,000 inhabitants, whereas in 1935 it was down to 9·4. This remarkable decline in the birth-rate and rise in the abortion-rate are, of course, closely related and it is remarkable that the ratio of abortions treated in hospital to all pregnancies in the period under review has risen from 2 2 per cent. to 31 6 per cent. This means that at the present time at least every third pregnancy ends in abortion. The married have a much lower abortion-rate than the unmarried, the percentages being 22 and 67 respectively. Every age-group participates in the growing frequency of abortions, although it is particularly under the age of 30 that the rate is highest. The frequency of febrile abortions requiring treatment in public hospitals has risen from 0 2 per cent. of all pregnancies to 13·3 per cent.—66 times higher than it was. The case fatality-rate from abortions was 2 4 per cent. among the unmarried against 1 per cent among the married. Dr. Apajalahti's study contains many other statistical data, all of them melancholy signs of the times.

BIOGRAPHY OF HARVEY CUSHING

Dr. J. F. Fulton of Yale University School of Medicine, 333 Cedar Street, New Haven, Conn., writes: Mrs. Cushing has requested me to prepare a biography of her husband, and I should be most grateful to anyone who wishes to make letters, anecdotes or other memorabilia available. Copies of all letters, no matter how brief, are desired, and if dates are omitted it is hoped that, when possible, these may be supplied—e.g, from the postmark. Original letters or other documents submitted will be copied and returned promptly. A new building is being erected at the Yale University school of medicine to receive Dr Cushing's library and collections, and any who wish to present correspondence, photographs or other memorabilia for permanent preservation among the Cushing papers will receive the thanks of the University.

Prof. CARL GUSTAF SANTESSON of Stockholm, who died on July 26, enjoyed an international reputation as a pharmacologist. He was born in 1862, and will be remembered for the important contributions he made to toxicology, and in particular to the study of arrow poisons.

PUNCH ALMANACK 1940.—The windows of London, on the cover of the new Punch Almanack, are brightly lit, and this symbolises the lack of black-out gloom from the inner pages There is an impressive double-page colour drawing by Illingworth of a duel between a free British airman and a Nazi monster—over a most attractive little German town. But this is the only stern note; the other pictures by old favourites and new are full of light and laughter. The whole makes a very cheering shillingsworth.

WE have received from H. R Napp Ltd, 3 & 4, Clements Inn, London, W.C 2, samples of a new poly-vitamin preparation, Abecedin As its name suggests, it contains A, B_1, B_2, C and D_3. Each tablet or teaspoonful of the emulsion contains the equivalent in vitamin-content of ʒ 2 cod-liver oil, ½ pint milk, 1 new laid egg, and ℥ 1 orange-juice.

Vacancies

Boston General Hosp—Res M O, at rate of £150.

Cambridge, Addenbrooke's Hosp—Cas O and supernumerary H O, at rate of £130 H P, at rate of £130 Also res anæsthetist and emergency officer, at rate of £130

Cardiff, King Edward VII Welsh National Memorial Assn—Asst. res M O for Glan Ely Hosp, £200

Castleford Urban District Council—M O H, £800.

Dudley, Guest Hosp—H S, £150

Edinburgh, Royal College of Physicians—Kirk Duncanson fellowship for medical research, £350

H M Colonial Medical Service—M Os

Lincoln City—Deputy M O H, £600

Liverpool, Royal Children's Hosp, Myrtle-street—Res H S, at rate of £100

Manchester, Royal Children's Hosp, Pendlebury—Res M O, at rate of £150

Manchester, Victoria Memorial Jewish Hosp—Res M O, at rate of £150 Also jun H S and cas O, at rate of £100

Newcastle-upon-Tyne, Royal Victoria Infirmary—Res surg O, £300 Three temp med regs, each £250 Also three jun surg regs, £150

Newport, Mon, Lydia Beynon Maternity Hosp—Res M O and asst M O for maternity and child welfare, £450

Newport, Mon, Royal Gwent Hosp—Appointments at rate of £200–£150

Nottingham Children's Hosp—Res H S, at rate of £150

Oldham Royal Infirmary—Res surg O, £100

Plymouth, Prince of Wales's Hosp, Greenbank Road—H S, at rate of £120

Queen's Hosp for Children, Hackney Road, E 2—H.P and cas O, each at rate of £100

Royal Free Hosp, Gray's Inn Road, W C 1—Registrar in ear, nose, and throat dept, at rate of £100.

West Hartlepool, Cameron Hosp—H S, £150

The Chief Inspector of Factories announces vacancies for examining surgeons at Mevagissey, Cornwall; Cranborne, Dorset, and Selston, Nottingham

Appointments

BECK, ADOLF, M D. Franfurt, L R C P E, assistant medical officer for bacteriology, pathology, and venereal diseases for Burnley

BROWN, ELIZABETH E, M B. Glasg, B Hy. Durh, D.P.H., assistant medical officer of health for Bedford

GEMMILL, GEORGE, M B Glasg, D P H, senior assistant medical officer of health for Burnley.

KNOX, H. J, M B, Belf, senior assistant resident medical officer at the Birch Hill Hospital, Rochdale

MCALPINE, THEODORA, M B Glasg, assistant resident medical officer for the new maternity hospital at South Shields

MCCLEMONT, J. E, M B Glasg, temporary assistant (deputy) medical officer at the New Cross Hospital and Institution, Wolverhampton

MCNAIRN, ALISON J, M B Lond, assistant medical officer at the City General Hospital, Plymouth

PIKE, RUTH, M B. Dubl., assistant medical officer of health for Huddersfield

POSTON, HENRY, M Ch. Belf., F.R.C S.E, orthopædic surgeon to the Victoria Memorial Jewish Hospital, Manchester

Examining Surgeons under the Factories Act, 1937 Dr P S BYRNE (Carnforth district, Lancashire); and Dr T S BLAIKLOCK (Morpeth district, Northumberland)

Births, Marriages and Deaths

BIRTHS

ADAM—On Nov 3, at Seaford, the wife of Major W E Adam, R A M C—a son.

BATEMAN—On Nov 5, at Rochdale, the wife of Squadron Leader G H Bateman, F R C S, of Hampstead—a son

GILROY—On Oct. 29, at Oxford, the wife of Major J C. Gilroy, R A M C—a son

GORNALL—On Oct 31, at Nailsea, near Bristol, the wife of Dr W A Gornall—a son

PYKE—On Oct. 31, at Bristol, the wife of Dr. H D Pyke—a son

MARRIAGES

MARTIN—ELLIS—On Oct 28, at Cambridge, Laurence Cleveland Martin, M D, of Southampton, to Mary Ellis, of Aberystwyth.

DEATHS

BAILLIE—On Oct 26, at West Runton, Major George Baillie, M B Dubl., R A M C

BAXTER—On Nov 5, at Hove, Edward John Baxter, L R C P E, late medical missionary in Tanganyika

BUCHANAN—On Nov 1, at Queen's Gate, London, Archibald Graham Buchanan, M R C S

CLARK—On Nov 5, Alec Landale Clark, M B Edin, of Gilbert Street, W 1.

HORSBURGH—On Nov. 2, in Edinburgh, James Henry Horsburgh, M B Edin, M O H. for Musselburgh.

COATS—On Oct 4, at Christchurch, New Zealand, George William Coats, M B Glasg

STRATON—On Nov 1, at Exmouth, Lieut Colonel Charles Henry Straton, M R C S, R A M C (ret), aged 63

ADDRESSES AND ORIGINAL ARTICLES

MEDICAL LITERATURE*

BY SIR ROBERT HUTCHISON, Bt., M.D. Edin., P.R.C.P.

IT will be agreed, I think, that the amount of the writings of a profession is a measure of its vitality and activity, whilst their quality is a rough indication of its intellectual state. Medical literature, to take our own case, is the currency or medium of exchange by which a man contributes to or borrows from the common stock of knowledge and experience, and the volume of this currency and the character of its metal are of the greatest importance to us all.

ITS BULK

Surveying contemporary medical literature, the first thing that impresses one is its bulk. Go into any large medical library and see the hundreds of periodicals spread out on its tables and the thousands of books on the shelves which line its walls and you cannot fail to be struck—perhaps appalled—by it. Professor Bulloch, who has given great attention to this subject, estimates[1] that there are over 5000 medical periodicals of one sort or another in the world, others have put the number as high as 7000. In this country alone, and we are more modest in our output than many of our neighbours, there are about 130. The number of medical books is of course much greater, the yearly crop of them in Great Britain amounting to more than 400, what it may be for the whole world I am unable to say. The matter can be put in another way there have been, to quote Professor Bulloch again, on an average two articles published on tuberculosis alone *every day* for the last 40 years. This gives one some idea of the immense fecundity of the medical press. There is no need, however, to labour the point, to paraphrase the words of a famous resolution, medical literature "has increased, is increasing and ought to be diminished." For let there be no mistake about it, this enormous proliferation, this pullulating and fungus-like growth is both a nuisance and a danger. The mere question of storage is itself a problem. In the library of the Royal Society of Medicine room has to be found for 3000 additional volumes each year, and these take up 60 feet of shelving 8 feet high. In a private house it is now impossible to find room even for bound volumes of the weekly journals, while in the modern flat the only room big enough to hold anything larger than a duodecimo is the bathroom. The consequence is that tons of medical journals must be thrown into the dustbins every week.

This, however, is merely the mechanical aspect of the question; more serious is the effect on the very purpose for which medical literature exists—the record and interchange of knowledge. As every delver in the mass knows, it is becoming increasingly difficult to find the needle in the haystack, the few grains in the heap of chaff. Facts may be said to be buried rather than recorded and the fruits of the labours of our predecessors are apt to be lost. More and more, too, is it difficult for the workers in one field to keep in touch with what is being done in others.

Bacon, in one of the aphorisms in the "Novum Organum," says that "when a man addresses himself to discover something he first seeks out and sees before him all that has been said about it by others," but it is almost physically impossible for anyone to do that now, and young writers seem often to ignore almost entirely the previous work on their subject. I am aware that this practice has been defended on the ground that reading up what other people have done tends to make the mind lose its freedom. There may be some truth in this, but none the less, neglect of the previous literature must necessarily involve much needless repetition of effort and searching for that which has already been found, besides making it difficult for the investigator to see his subject in correct focus. The case of those, and they are the great majority of us, who are not investigators but who read only to learn and to keep abreast of current knowledge, is equally hard. Snowed under by an increasing avalanche of publications, their attention becomes wearied and dissipated till they are tempted to give up in despair.

HOW TO COPE WITH IT

What, then, is to be done? Must we sit still and see science suffocated in its own secretions or can we do anything to mitigate the evil? If that is impossible, how can we as individuals make the best use of medical literature without being overwhelmed by it?

There are some, to consider the last question first, who get over the difficulty by simply ignoring medical publications altogether. I remember, for instance, going into the room of a practitioner, a man of much general reading, and seeing on the floor a large heap of weekly medical journals still enclosed in their wrappers. On my asking him why he kept them there if he did not mean to read them, he replied that he found them useful to throw at the cat! I have also been told, although the story may be apocryphal, of a young doctor who went down to act as holiday locum for a practitioner in the country. The practitioner before leaving told the young man that he would have the run of the whole house except for one room which he must not enter. Needless to say, no sooner had the holiday maker gone off than the young man made his way into this Bluebeard's chamber only to find it stuffed from floor to ceiling with unopened medical journals. Such was the elderly practitioner's grisly secret. Many of us, it must be confessed, though not so negligent as he, at least welcome the relief of receiving in August or September the students numbers which contain nothing requiring attention and which therefore afford us a temporary respite. For current medical literature cannot be permanently ignored with impunity. As Osler said, "A doctor who does not use books and journals, who does not need a library, who does not read one or more of the best weeklies and monthlies soon sinks to the level of the cross-counter prescriber, and not alone in practice, but in those mercenary feelings and habits which characterise a trade."

All the busy practitioner can do is to tear out from his weekly journal those articles which interest him and which have a direct bearing on his work and file them. In this way he will build up a collection to which, if it is properly indexed, he can refer as need arises. If, in addition he gets every year such a publication as the *Medical Annual* it should not be difficult for him to keep reasonably up to date.

For the contributor to medical literature, however, who takes into account the work of others [illegible] enough. He needs in the first place a clue through the labyrinth—a directory to help him to find the publications relevant to his own work—and fortunately we have in the *Quarterly Cumulative Index* an excellent guide of this sort to the producers of which medical writers can never be sufficiently grateful.[2]

---

* The Lloyd Roberts lecture delivered before the Medical Society of London on Nov. 16.

[1] Schorstein lecture. *Brit. med. J.* 193[illegible], 2, 810.

The next difficulty may be to find the particular journal in which the required paper has appeared. There was an interesting discussion on this point last summer in the correspondence columns of *The Lancet*,[3] originated by Professor McDowall, in which several contributors laid emphasis on the importance of greater cooperation amongst different libraries so that their resources in the form of the less known journals could be pooled for the benefit of readers. No doubt much might be done on these lines to make it easier to consult the rarer publications.

"GETTING UP THE LITERATURE"

But when the required articles have been found they have still to be read and abstracted. This is a laborious business which requires also nowadays a considerable knowledge of foreign languages, and more and more there is a tendency, which seems to have originated in America, to have bibliographies prepared and abstracts made by professional librarians. I confess I view this labour-saving device with no great favour. It seems best for each writer to do his own quarrying, for the librarian, however skilled in his own business, has had no medical training and cannot be expected to know the relative value of different papers nor the points in any which should be picked out. He has therefore perforce to confine himself to a transcription of the summary of the paper, if a summary is given, but for the conscientious original writer such a summary is not enough. The only excuse, indeed, for this way of "getting up the literature" is when the paper is written in some outlandish language, with which a librarian may have at least a working acquaintance, or when the student lives remote from any large medical library. In such a case, however, it is now possible to send a photostat copy of any article required and that is far better than a mere abstract made by someone else.

The work of the literature-hunter would be easier were there more periodical publications of abstracts like the German *Zentralblatter* and *Jahresberichte*. The Medical Research Council produced such a publication for a few years (*Medical Science. Abstracts and Reviews*) which was of great value, but unfortunately it came to an end, and in my own sphere of work I have found *Nutrition Abstracts* very helpful, but even some volumes of abstracts have come to reach a portentous bulk. The ideal, of course, would be an international clearing-house in which the whole periodical medical literature of the world would be sifted by experts and summaries made of such papers as contained any original as opposed to merely repetitive or didactic matter, the summaries being published in English, French and German. In this way the pith and marrow of all current medical literature would be extracted and presented in a readable form, but it is to be feared that such a plan is visionary.[4]

All these devices leave untouched the root difficulty—the immense bulk of raw material to be dealt with. Can this in any way be reduced? This at once raises the question, what prompts doctors to write? Why, as Dr. Johnson wondered of literature in general, have so many people written "who might have let it alone"? The motives for medical writing are no doubt mixed, some reasonable and creditable, others less so. Good reasons are the necessity for putting on record new observations or results of experiments and the impulse to teach—to impart a conviction or to present a subject in a new light. Bad reasons are the desire for prestige and priority (of which the "preliminary note" is a familiar example) or the itch for advertisement. In this connexion I remember many years ago being present at a meeting of the British Medical Association at which the late Lawson Tait held up a copy of the official organ of that body, saying, "I divide this journal into the *intra* professional and the *extra* professional advertising portions." That, of course, was grossly unfair. It is easy to be too censorious in this matter of alleged self-advertisement, for after all the only way in which a young man can let it be generally known by his colleagues that he possesses special knowledge or skill in any department of work is by contributions to the professional journals. Writing from such motives is surely legitimate enough. But one must draw the line at the publication of the same paper in more than one journal and at the equally reprehensible practice of sending out reprints wholesale.

Another motive for writing which is of doubtful validity is the desire for what is nowadays called self-expression—really a form of mental exhibitionism. "Nobody but a blockhead," said Dr. Johnson, "ever wrote except for money," yet the number of these gratuitous medical writers is considerable, however difficult it may be for those of us to whom writing is a pain and toil to realise it. How different was it with a member of the surgical staff of the London Hospital in the 18th century, of whom it is recorded that he was "guiltless of any contribution to medical literature." No doctor, surely, need desire a better epitaph, for silence, as Carlyle said, is the eternal duty of a man.

These motives being apparently so compelling, there is no need to add temptations and inducements to write—that is simply putting mischief into people's heads. Amongst such uncalled-for inducements I would include all ceremonial orations, all presidential addresses, and in particular all memorial lectures (such as this). The last have multiplied to such an extent as to have become a nuisance, and it is increasingly difficult to find people to give them or to collect audiences to listen to them. In any case there are surely better ways of remembering the dead than by boring the living. But even the total abolition of all extraneous inducements to write would make no appreciable difference to the spate of medical literature, so we are driven to consider what can be done to make it more manageable.

HOW TO CONTROL THE OUTPUT

In the first place, there should be strict birth control in regard to new journals. There being far too many already, why add to the number? Secondly, amalgamation of existing journals might well be carried out in many cases. It is absurd, to take only one example, that in this country there should be two journals devoted to diseases of children. Thirdly, some journals might be suppressed altogether. Amongst these I would include those which appeal only to a local patriotism such as (let us say) the *John O'Groats Medical Journal* or the *St Cyprian's Hospital Reports*. There are five of these local journals in England alone and Scotland could add its quota. I am aware of the justifications put forward for their existence—that they get into print work which would not otherwise appear (surely a very bad reason!), that they publish the proceedings of local societies and obituaries of local medical men, that they keep alive a regional patriotism, and so forth, but I doubt if these are adequate. What we should aim at is to have the stream of publications gathered into as few channels as possible. Moreover, superfluous journals lead to superfluous writing, for their editors are sometimes driven to tout for contributions whereas instead of the editor having to woo the writer it should be the writer who has to persuade the editor to find room for his article.

---

[2] Mr. Leslie Morton's book "How to use a Medical Library" (London: John Bale) may be studied with advantage by all readers.

[3] *Lancet* 1939, 1, 1401 et seq.

[4] In leading articles in the *Lancet* (April 1, p. 765 and Aug. 5, p. 321) some suggestions for the better dissemination of scientific information are fully discussed.

In my view the ideal current medical literature for this country would consist of one good weekly journal catering especially for the general practitioner, which would contain articles mainly clinical in character but also critical reviews and abstracts of the work published in the more specialised periodicals both here and abroad. In addition to this each special branch of medicine would have a journal (but not more than one) *appearing at longer intervals, for the publication* of original work in that sphere. These journals might also with advantage contain summaries of the more important foreign papers in the specialty. This should meet all the needs both of writers and readers.

STRICTER EDITING

These measures would do something, though not much, to check the flow of superfluous writing, but the chief means to this end must be stricter editing. This would involve, of course, the refusal of many articles which at present find their way into print, but that need cause no regrets, for most of them are better unpublished. Anyone who has to read through large numbers of articles with a view to abstracting from them anything of value must soon be convinced of this. I found, for instance, when doing such work for the *Medical Annual*, that not more than a fifth of the articles sent to me were worth anything—the rest went straight into the wastepaper basket.

Closely involved with this matter of the refusal of articles is the question of payment to writers. It is sometimes argued that an editor cannot look a gift horse in the mouth, but surely if his journal has any right to exist at all there should be competition to get into it. I have been told, too, by a professor in Germany that one reason for the existence of many superfluous medical journals in that country is that they pay their contributors and this tempts to unnecessary writing. Further, the articles which are accepted should be more drastically dealt with. We want more of the severe editing which Langley used to apply in the *Journal of Physiology* when he controlled it. Most articles, for instance, are too long. For that matter almost everything is too long—lectures, speeches, sermons, books. "Was there ever yet anything written by mere man" (if I may again quote Dr. Johnson) "that was wished longer by its readers excepting *Don Quixote, Robinson Crusoe* and the *Pilgrim's Progress*?"—and some readers would not even except these. The capacity of the average human being for sustained attention is greatly exaggerated, and in every sphere there is need to practise the art of leaving off. Powerful astringents, it is true, may be required to check the verbal diarrhœa which afflicts so many writers, but it is the business of the editor to administer them. Meanwhile every paper that lends itself to it should have a summary appended not only that he who runs may read but to facilitate translation of the pith of the paper into the yearbooks. Fortunately the provision of such summaries is a growing practice.

MEDICAL BOOKS

The over-production of books is as great a nuisance as the multiplication of journals and an even greater expense to libraries. The average doctor is not much of a book buyer, and considering how quickly medical books become out of date one cannot blame him; the only best-sellers in medical literature are textbooks which most students use for examinations, or a few books which have a direct bearing on practice, such as works on therapeutics. But if sales are so small why are so many books written? The publishers, I think, are largely to blame. In their rivalry with their competitors they easily persuade young would-be authors to write for them. The writer is flattered to be asked and argues that whereas he may get some advantage out of writing the book, he can lose nothing by it; the publisher, on the other hand, recoups himself for his many failures at the expense of the more successful authors. This is a vice inherent in commercial publishing for which apparently there is no remedy. *Meanwhile it would be a great gain if*, instead of issuing expensive and elaborate textbooks, publishers would provide us with more concise, fully-documented monographs giving a complete account of present knowledge in a limited field, and produced as cheaply as possible. We could also do with more yearbooks.

DULLNESS OF MEDICAL LITERATURE

In considering the quality of medical literature as distinct from its quantity one has to distinguish between its content and its form. As regards the content, one is struck by the great excess of facts and the comparative absence of ideas, generalisations and hypotheses; there is, in short, too much observation and recording and too little reflection. Hence much of it is like a heap of bricks without any mortar to hold them together. The power of wide generalisation, of course, is very rare, but medical writers might at least show greater imagination, and the lack of this has the sad consequence that much medical literature is deplorably dull. This dullness is the more curious considering that the subject matter is so interesting. A medical textbook might well be like one of those omnibus volumes of "Detection, Mystery and Horror"—for, after all, diagnosis is detection, disease is often mysterious and, heaven knows, our work is full enough of horrors—but, as it is, the average textbook is about as readable as a telephone directory. Take, for instance, the biography of a red blood corpuscle from its birth in the bone-marrow, with its capillary wanderings and its moving adventures by flood and field to its normal gradual old age and burial in the spleen or to its tragic end in a hæmorrhage. It might be made a vivid Odyssey, but how dull it all sounds in a textbook of physiology—as arid and sterile as dry and dusty as the sands of the Sahara. But medical writers are not only afraid of romance they even fight shy of humour. They seem to think that dullness is expected of them and do not agree with the Virgilian tag that "in order to speak truth it is not necessary to pull a long face" and still less with the character of Stevenson's who thought that there was "nothing like a little judicious levity." And yet it is probably true that a writer has never really mastered his material until he can jest about it; until then it has mastered him. Whilst therefore the volume of medical literature betokens an intense activity of observation and research, its content on the whole is dull and pedestrian.

PROLIXITY AND OBSCURITY

As regards their literary form, medical publications are not—perhaps should not be—literature if one means by that, as the dictionaries say, "writings esteemed for beauty of form or emotional effect."

Brevity, lucidity and a reasonable observation of the rules of syntax are all that can be expected of them; the purple patch is out of place. But these simple demands are often not met. Prolixity and not brevity is too common and is responsible for a good deal of the unnecessary bulk of literature. Lucidity, on the other hand, is to some extent an outcome of the language a writer uses It is difficult to be obscure in French, easy in German, whilst in the case of English all depends upon how it is written, the man being more important than the medium In all languages, however, it is probably true that clear thinking and clear writing go together.

Apropos of this, it is one of the unfortunate results of the increasing specialisation of knowledge that the writings of workers in one department are often hardly to be understood by those outside it. I confess, for instance, that many papers on medical psychology, bio-chemistry or iatro-mathematical subjects might, so far as I at least am concerned, just as well be written in Chinese. Much of this obscurity is due to the use of mere jargon, but some of it is unavoidable, for as knowledge extends new terms are needed to embody fresh conceptions. Such neologisms should as far as possible be coined from Greek or Latin roots, despite the fact that Latin is no longer the *lingua franca* of science, but owing to the narrow chauvinism so widely prevalent today there is an increasing tendency to use new words of home manufacture. Many of the new Germanisms are of this class Such terminological self-sufficiency is much to be regretted

ABSENCE OF LITERARY FORM

In addition to being prolix and obscure medical literature exhibits only too often an absence of any sense of style or even of grammar American medical literature, although it contains some admirable material, is apt to offend in both these respects Gould, himself an American, has said of some specimens of it that "they give shame to gods and men and are fit to arouse the cachinnations of the imps of hell." We are not yet so bad as that here, but the average of medical writing is probably not so high now as it was last century. Certainly we have no textbooks like those of Michael Foster, Fagge or Osler, and the modern multiple productions which have succeeded them have lost the individual touch It is noteworthy that much of the didactic writing of older days was in lecture form, the lectures of Trousseau, Graves, Watson and G W. Balfour are classical examples which spring to mind, but somehow the modern publisher does not favour lectures, although they are usually much more readable than the formal textbook

There are probably several reasons for so much slovenly writing Often it is the result of mere haste or carelessness, and the dictaphone, the stenographer and the typewriter have much to answer for in this connexion. Medical authors are for the most part not practised writers and should therefore take all the more pains, nor are there lacking plenty of mentors and instructors for the novice both in this country and in America[5] To a large extent, however, the root of the evil lies deeper and is a consequence of defective literary and linguistic education. It is deplorable, for instance, that in an examination of the standard of the M.R.C.P. it should have been found necessary to drop Latin and Greek because almost no candidate in recent years ever attempted the comparatively simple translations from these languages, whilst very few show even any knowledge of German. The great models of English prose, too, are probably less read by the younger generation, and a literary diet of newspapers, detective novels, and the productions of scenario-writers is no substitute for them

STYLE AND MATTER

It may be contended in reply to all this that the style of medical writings is not of much importance because these are read primarily for their matter Unquestionably this is too superficial a view, for, as Allbutt said, "the man of science ought best to know that style and matter can no more be dissociated than skin and bone, but if we write clumsily, loosely or disjointedly our thoughts are accordingly"

It is time, however, that I came to an end, or you will accuse me of not practising the brevity which I have preached Let me therefore conclude with a quotation from Dr. Charles Singer, himself both a scholar and a scientist, in which this question of the relation of form and substance in scientific writing is very clearly presented:

> "Humanities and the sciences are far from being as independent of each other as many suppose. If literary studies lead to clear and effective expression and clear and effective thinking in the domain of science, scientific studies ventilate and inform and vitalise literature. The separation of the two disciplines, especially in the adolescent stage of mental development, does an injury to both"

I believe that to be profoundly true

CONSERVATIVE TREATMENT OF LIVER ABSCESSES

By A. Cecil Alport, M D. Edin, F R C P
PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF CAIRO
DIRECTOR OF THE MEDICAL UNIT, UNIVERSITY HOSPITAL, CAIRO; AND

P Ghaliougui, M.D. Cairo, M R C P
ASSISTANT PHYSICIAN TO THE HOSPITAL

The recognised treatment of liver abscesses is aspiration and emetine; operation is only resorted to if the abscesses are secondarily infected Amœbic abscesses, once the amœbæ are destroyed by emetine injections, may be looked upon as sterile Surgical treatment, apart from the inherent risk attached to any operation, especially on a severely debilitated person, adds the risk of secondary infection In many tropical hospitals the routine procedure is to explore the abscess, stain a smear of pus, and examine it microscopically. If polymorphonuclear cells or bacteria are found, the patient is sent at once to the surgeon In our opinion, had case 2 of our series been operated on in his debilitated, toxic, and dehydrated state, he would most certainly have died on the table The abscess, which was at first apparently sterile, showed a pure growth of *Bacillus pyocyaneus* when aspirated on the second occasion Since we had successfully treated a case of pyelocystitis due to *B. pyocyaneus* with sulphonamide-P early in 1938, after all other treatment had failed, we decided to try the drug here The patient recovered Since then Stewart and Bates (1939) have reported cases of *B pyocyaneus* infection successfully treated with sulphanilamide (Streptocide). We do not suggest that all infected or pyogenic liver abscesses should, as a routine, be treated by aspiration and with sulphonamide preparations, but in selected cases conservative treatment seems to be indicated.

---

[5] For example Allbutt (The Composition of Scientific Papers), Gould (Suggestions to Medical Writers), G H Simmons and Morris Fishbein (Art and Practice of Medical Writing); Maud Mellish Wilson (The Writing of Medical Papers); R D. Gillespie (The Writing of Medical Papers, *Guy's Hosp. Gaz.* May 1930). The M R C. "Notes on the Preparation of Reports for Publication" and the *Lancet's* "On Writing for the *Lancet*" are also very useful

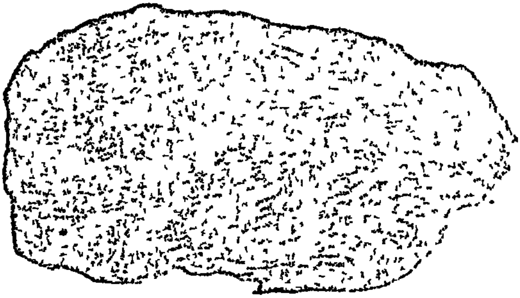


Fig. 2—Pleural surface of right lung showing subpleural abscesses. (Half the *natural width.*)

CASE RECORDS

CASE 1.—A man, aged 45, was admitted to University Hospital, Cairo, with dysentery of ten months' duration. Twenty years previously he had had a similar attack. Four months before admission pain and swelling began in the right hypochondrium and had gradually increased since then.

On admission he was weak and very emaciated, with sunken face, pinched features, and an earthy discoloration of the skin. His temperature oscillated between 99.5° F and 101.3° F. The pulse was weak, the rate being 80, and his leucocytic count was 12,000. The liver was very tender and enormously enlarged; it reached the third intercostal space above and the level of the anterior superior iliac spine below. The apex beat of the heart was not displaced. Minute ulcers were seen through the sigmoidoscope, but no amœbæ could be found in the scrapings.

The patient was given emetine hydrochloride gr. 1 daily, and on the fifth day 3¼ litres (120 oz.) of green pus was aspirated from the liver and coagulated spontaneously within a quarter of an hour—a supposed sign of amœbic abscess pus.

As the pus was being removed, the liver gradually passed upwards from its abnormal position 4 in. below the umbilicus, until it could no longer be palpated below the costal margin, and the point of the needle, which was originally directed vertically and could be felt to move freely in a cavity, was gradually pushed upwards by the shrinking liver, until it *assumed an angle of 30° to the surface and could be* felt tightly compressed by the surrounding liver tissue.

Aspiration was repeated seven, fourteen, and twenty-five days later, 2100 c.cm., 1500 c.cm., and 1000 c.cm. of pus being removed respectively. The pus became less and less viscid and acquired the typical "anchovy-sauce" appearance. On each occasion the enlarged liver shrank back to normal during aspiration. In our experience amœbic pus is generally greenish yellow on first aspiration and develops the "anchovy-sauce" colour later.

Before discharging the patient from hospital, we needled the liver through the sixth space in the nipple line, the seventh space in the anterior axillary line, and the ninth space in the posterior scapular line. All these explorations were negative, and clinically he was cured.

CASE 2.—A man, aged 30, with dysentery of two months' duration and bulging and pain in the right hypochondrium of one week's duration. The general condition was extremely bad, the patient being very toxic and dehydrated. The temperature was 99° F, pulse-rate 85, pulse dicrotic, and the blood pressure 85/70, leucocytes 11,775 (polymorphs 68 per cent., lymphocytes 30 per cent., hyalines 1 per cent., and eosinophils 1 per cent.). He was immediately given emetine gr. ½ daily with Coramine, insulin and glucose by mouth. The subsequent course is shown in fig. 1.

Jan. 23, 1939. 300 c.cm. of very thick green pus was aspirated from the liver. On the 25th the liver reached four fingers' breadth below the costal margin and after the removal of 500 c.cm. of thick green pus returned to normal size. The temperature then gradually rose to 102° F.

Feb. 4. 800 c.cm. of liquid green pus was removed, the offensive smell of which suggested an infection due to *Bacterium coli*. It contained pus cells, and culture produced a pure growth of *B. pyocyaneus*. Sulphonamide P 1 g. was given twice daily for ten days.

On the 9th the temperature fell to 99.5° F, and 250 c.cm. of pus was aspirated. Soluseptasine 5 c.cm. was injected into the abscess cavity.

On the 22nd the temperature was nearly normal. 200 c.cm. of brown fetid pus was aspirated and 10 c.cm. of soluseptasine was injected into the *abscess. The pus contained pus cells* and a pure growth of *B. pyocyaneus* was again obtained on culture.

On the 24th the white-cell count was 12,000. On March 7 treatment was begun with M & B 693 1 g. twice daily until the 13th, when there was a sudden rise of temperature to 104° F. The white cells were 20,000 (polymorphs 8[illegible] per cent., lymphocytes 10 per cent., hyaline [illegible] per cent. ... [illegible] per cent.), and 50 c.cm. of pus was aspirated. M & B 693 was discontinued and sulphanilamide P was given instead

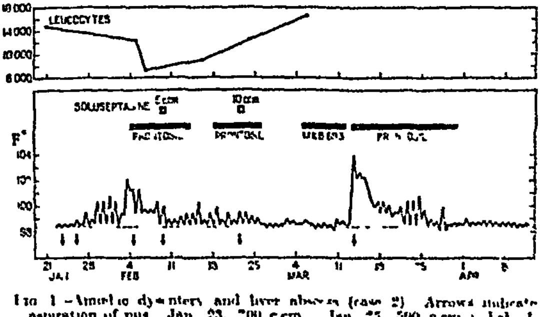


Fig. 1.—Amœbic dysentery and liver abscess (case 2). Arrows indicate aspiration of pus: Jan. 23, 300 c.cm.; Jan. 25, 500 c.cm.; Feb. 4, 800 c.cm.; Feb. 9, 250 c.cm.; Feb. 22, 200 c.cm.; March 13, 50 c.cm.

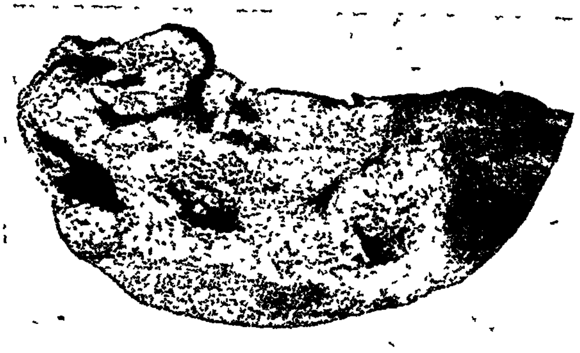


FIG 3—Cut surface of liver showing five amœbic abscesses. (About three-eighths the natural width.)

On the 15th there was abdominal rigidity. Pulse-rate 112, temperature 102·5° F. Signs suggested peritonitis, so the patient was transferred to the surgical side. On the 18th he was sent back to the medical unit without having been operated on.

On April 1 radiography showed right pneumonitis in the middle zone, suggesting an abscess. This cleared up a week later.

On the 19th the leucocytes numbered 9400 (polymorphs 67 per cent., lymphocytes 24 per cent., monocytes 4 per cent., and eosinophils 5 per cent.). The sedimentation-rate was 100–120. On exploration of the liver blood alone was obtained. Temperature normal.

On June 10 the sedimentation-rate was 19–25, and on the 17th 16–30, when the patient was discharged cured.

CASE 3.—A man, aged 60, who had had dysentery for a month and gradually increasing pain in the right hypochondrium for a week. His general condition was extremely bad, and he looked dangerously toxic and very emaciated. His face was pale, with flushed cheeks and subicteric conjunctivæ. Pulse-rate 110, temperature oscillating between 97·7° and 99·3° F., respiration-rate 28 The liver reached the level of the umbilicus, and the skin overlying it was œdematous. Tenderness was especially pronounced in the seventh space in the midaxillary line. The apex-beat was not displaced. Radiography showed the right leaf of the diaphragm to be 6 cm. higher than the left, and a small effusion was seen in the right costodiaphragmatic sinus. The leucocytic count was 19,600. The stools contained no parasites. The patient was given emetine gr. 1 daily, with strychnine gr. 1/60, coramine 10 drops t.d.s., insulin, and glucose.

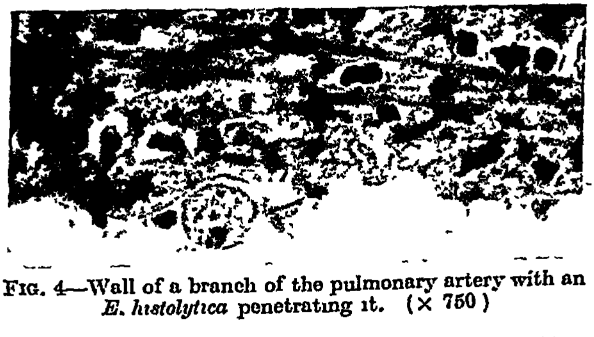


FIG. 4—Wall of a branch of the pulmonary artery with an *E. histolytica* penetrating it. (× 750)

On the day after admission 800 c.cm. of thick chocolate pus, which coagulated spontaneously, was aspirated from the liver. Six days later another litre was removed It was thinner and "café-au-lait," contained fibrin flakes, and did not clot. Emetine gr. 1 was injected into the abscess. Five days later the leucocytic count was 15,600, and 650 c.cm. of pus was aspirated.

Next day the patient developed a right-sided bronchopneumonia. He was given M. & B. 693, an initial 2 g. and then 1 g. every four hours for two days, followed by 1 g. thrice daily In spite of this his leucocytic count remained high (18,000), and six days later 600 c.cm. of serous pleural effusion was removed. Aspiration was followed by severe pleural shock, quickly controlled by coramine, oxygen, and morphine.

Ten days later the patient again became dyspnœic, with his apex-beat displaced to 1 in. outside the midclavicular line. The liver was aspirated, 500 c.cm of very thin "café-au-lait" pus being removed. Two weeks later 1200 c cm. of serous pleural effusion was aspirated. Two further aspirations of the liver, ten and twenty-two days afterwards, were carried out, 450 and 250 c cm of pus being removed. Recovery was uneventful.

CASE 4 —A policeman, aged 30, with dysentery for the last two years, had a severe continuous pain in the right hypochondrium which prevented him from sleeping The liver reached the umbilicus and was very tender. His leucocytic count was 14,070. He was given emetine gr. 1 daily On the day after admission 1200 c.cm. of thick yellow matter was removed from his liver, and emetine gr. 1 was injected into the abscess cavity. The pus was sterile and contained only degenerate material. A week later 900 c.cm. of matter was removed and emetine gr 1 injected. The pus was less thick. He was discharged apparently cured, with an impalpable liver, nineteen days later. His leucocytic count had not risen higher than 8000 during the previous two weeks

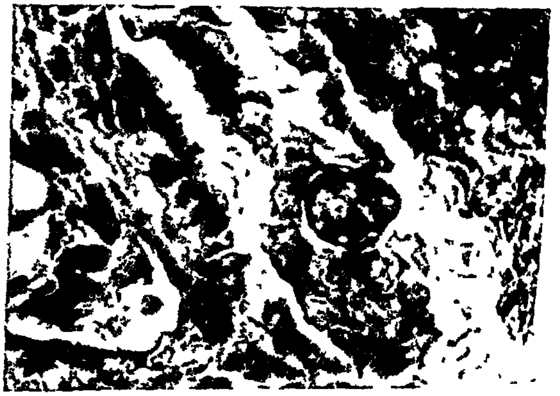


FIG. 5—Section in the wall of an abscess in the right lung. An *E. histolytica* is seen in the middle of necrotic lung tissue.

This man returned to hospital during the summer five months later, suffering from another attack of amœbic dysentery, with blood, mucus, and numerous vegetable forms of *Entamœba histolytica* in the stools. His liver was again found to be enlarged and tender, the leucocytic count was 13,900; 200 c cm of pus was aspirated, followed in a week by the evacuation of a further 80 c.cm. He is now rapidly improving under treatment with emetine, to be followed by a course of emetine bismuth iodide. In view of the massive intestinal infection this case is probably a reinfection rather than a recurrence of his original condition

CASE 5.—A man, aged 30, complaining of a severe stabbing pain in the right side of the chest of seven days' duration, increasing on deep inspiration The onset was sudden and accompanied by cough, slight pyrexia, and loss of appetite. A similar attack, which lasted three days, had been experienced fifteen years previously.

On examination the right lower half of the thorax was bulging, and the respiratory movements, vocal resonance, and breath sounds were much diminished

Dullness on this side extended up to the fourth intercostal space in the midclavicular line, to the third rib in the midaxillary, and to the fourth rib in the infrascapular Over the left lung a few moist rales could be heard The right hypochondrium moved very little with respiration and was tender The liver dullness extended down three fingers-breadth above the umbilicus The patient was immediately given emetine gr 1 daily, and 300 c cm of pus was aspirated from the liver Another 250 c cm was aspirated five days later He died next day

Autopsy revealed subpleural abscesses, lobular pneumonia in the right lung (fig 2) and antemortem thrombi in the left lung The liver contained five amœbic abscesses (fig 3), one 7 cm in diameter, the others about 5 cm General peritonitis was also present Histologically the antemortem thrombus in the left lung contained *Entamœba histolytica*, one amœba, apart from the thrombus, was seen apparently in the process of penetrating the wall of a branch of the pulmonary artery (fig 4) The areas of lobular pneumonia in the right lung contained *E histolytica* (fig 5), and amœbæ were found in the walls of the liver abscesses and in ulcers in the large intestine This case has been reported in detail by Girgis (1939)

DISCUSSION

Liver abscesses are relatively common in Egypt Five cases are reported which were seen in the medical unit wards of University Hospital, Cairo, during the last year

In case 1 an incredible quantity of pus—3500 c cm (120 oz)—was removed by aspiration at one sitting The total amount of pus removed was 8100 c cm (270 oz) in four aspirations Notwithstanding this there was no sign of liver insufficiency, and an organ weighing 50 oz showed itself capable of accommodating nearly one and a half times its volume of pus without rupturing

Case 2 is probably the first recorded case in which a secondarily infected liver abscess has been cured by drugs of the sulphonamide group, together with repeated aspirations

Case 3 was an extremely toxic patient, with a very bad prognosis Here the value of the position of the apex beat in distinguishing a pleural effusion from a liver abscess and in the diagnosis of a pleural effusion complicating a liver abscess is strikingly shown Although the right leaf of the diaphragm was 6 cm higher than the left the heart was not displaced, it was only when a pleural effusion developed that the apex beat moved 1 in outside the midclavicular line

Case 5 died but no operation could have saved him He had seven abscesses in the liver, multiple lung abscesses areas of lobular pneumonia in the pre abscess stage, several *E histolyticæ* pulmonary emboli and general peritonitis This case is of great interest for it proves conclusively the septicæmic nature of at least some amœbic lung abscesses In one microscopic section an isolated amœba is seen penetrating the wall of an artery (fig 4) independently of any embolism detached from the liver or elsewhere

SUMMARY

(1) Five cases of amœbic liver abscess treated with emetine and by aspiration are reported In one case 3500 c cm (120 oz) of pus was removed in one sitting

(2) One patient was secondarily infected with *B pyocyaneus* and recovered on sulphonamide P given by mouth and into the abscess cavity, besides the above treatment

(3) All the patients but one recovered Post mortem findings show that this patient could not have been saved by open operation

One other patient case 1 however had another attack of amœbic dysentery accompanied by further liver abscess formation, five months after discharge from hospital

(4) In all these cases the extremely toxic condition of the patients rendered operation very dangerous

REFERENCES

Girgis S (1939) *J Egypt med Ass* July, 1939 p 402
Stewart, W, and Bates T (1939) *Lancet*, i, 820

STAPHYLOCOCCAL SEPTICÆMIA COMPLICATING CARBUNCLE OF THE FACE

RECOVERIES AFTER TREATMENT WITH M & B 693

By Allan W Abramson, M B Camb, M R C P
AND
Benjamin Flacks, M B Manc
RESIDENT MEDICAL OFFICERS AT THE LEICESTER CITY GENERAL HOSPITAL

This note concerns six cases of carbuncle of the 'mask' area of the face Five were shown to have staphylococcal septicæmia, and in the sixth which was fatal, there is little doubt that the condition was the same, though the blood was not cultured In each case the infection started on the upper lip or the ala nasi and spread to the cheek The longest interval before admission to hospital was a week, in the other cases it was three to four days Taken in chronological order, the first four patients died on the fourth or fifth day after admission, whereas the last two have recovered

Local treatment in each case almost identical consisted in the application at short intervals of cool hygroscopic dressings All the patients at some time received drugs of the sulphonamide group Uleron was given alone in one (Case 3) and followed by prontosil in another (Case 4), and both patients died Prontosil or proseptasine was given to three patients (Cases 1, 2, and 5) including one who recovered (Case 5), though it was not given in this case until a fortnight after admission, when the patient appeared to be out of danger (during the acute stages of her illness she had been given M & B 693) M & B 693 was given for a short time also to case 4, but its administration was not started till the day before her death when her state was desperate Case 6 was given M & B 693 alone from the start Staphylococcal antitoxin was given to two patients case 2 (who died) and case 5 (who recovered) larger doses being given to case 2 (a child of seven) than to case 5

The treatment of the two patients who recovered differed from that of the others in two respects—namely, the early administration of M & B 693 in large doses, and ligature of the angular vein on the affected side to prevent thrombosis of the cavernous sinus To one of these patients the drug was given wholly by mouth, whereas the other received the sodium salt by injection There was a third difference in treatment—when the tenseness and induration of the tissues was at its height and there appeared to be scattered areas of localised suppuration several small puncture incisions were made under evipan anæsthesia care being taken to avoid the healthy edges It is felt that some benefit may have resulted from the reduction of tension and improved blood supply that would be expected to follow this operation

CASE REPORTS

Case 1—A chauffeur aged 21, was admitted on April 1 1937, with a history of having had a painful swelling of his nose a week previously This had begun to subside but had flared up again, and the tissues round his right eye had become swollen

When first seen his nose was swollen, red, and painful, and there was œdema round the right eye. The eye was slightly proptosed, and the conjunctiva showed early chemosis. Thrombosis of the cavernous sinus was suspected. His temperature was 103° F., pulse-rate 120, and respiration-rate 32.

Magnesium-sulphate lotion was applied locally, and he was given 20 c.cm. of anti-scarlet-fever serum intramuscularly. Blood-culture gave a growth of staphylococci in twenty hours. On the 2nd he was worse; his temperature was high and swinging, and his pulse and respirations were much as before. The right eye was more definitely proptosed He was given 10 c cm. of a 5 per cent. solution of soluseptasine intravenously, and treatment with proseptasine 0·5 g. three-hourly by mouth was started. On the 3rd there was no improvement, and he was given, besides the proseptasine by mouth, 5 c.cm. of prontosil rubrum intramuscularly at 11 A M. and again at 6 P M. On the 4th he was worse, and on the 5th he died in coma, with bilateral proptosis

CASE 2.—A girl, aged 7, was admitted on July 16, 1937. *Four days before admission she had a small boil on the right āla nasi, and since then her upper lip had become swollen*

When first seen she looked ill; the right side of her upper lip was swollen, with a small ulcer on its buccal aspect, and there was a bloodstained discharge from the right nostril. There was some swelling of the right side of her face. Her temperature was 102·4° F., *pulse-rate 120, and respiration-rate 36.* No abnormality was found in her other systems. The urine contained acetone but no other abnormality. Blood was taken for culture but was sterile.

Magnesium-sulphate lotion was applied locally, and she was given 0 5 g of proseptasine four-hourly. On the 17th a few small furuncles appeared on the upper lip, and the œdema of her face was increasing *Blood-culture was repeated, and staphylococci grew* in twenty-four hours. On the 18th the administration of proseptasine was stopped, and she was given 5 c.cm. prontosil rubrum intramuscularly, to be repeated daily. Her face was more swollen, and her temperature remained high. Her pulse-rate and respiration-rate had risen On the 19th she was given staphylococcal antitoxin 2500 units intravenously at 10 A.M and again at 6 P M. This was repeated next day Her condition continued to deteriorate, and she died at 6 A.M. on the 21st, with great bilateral œdema of the face.

CASE 3—A man, aged 45, *was admitted on* Aug 22, 1938. He had had pain in the left side of his nose for four days, and on the day of admission he had developed an indurated swelling of the left maxillary region, with œdema of the tissues round the left eye. On admission, besides these symptoms there was proptosis of the left eye.

Blood was taken for culture, and staphylococci grew in *twenty-four hours.* He was treated with magnesium-sulphate lotion locally and uleron, two tablets six-hourly. His temperature was 101 8° F. on admission, and the next day it had fallen to normal, but his general condition was worse. *On the* 25th signs of meningitis were found, and on lumbar puncture the cerebrospinal fluid, from which *Staphylococcus aureus* was grown, was turbid He died on the 26th.

CASE 4.—A female factory hand, aged 19, was admitted on Sept. 18, 1938, with *three days'* history of swelling of the upper lip It had started as a boil on the left side and had steadily extended

On examination the lip was swollen and indurated; the left cheek was becoming involved, and, to a lesser degree, the right. Both eyes were closed *with soft* œdema, but otherwise seemed *normal*, and there was *no proptosis.* There was a small pustule near the left nostril, from which a bead of pus was evacuated for culture; a large growth of *Staphylococcus aureus* was obtained. Her temperature was 100·8° F., pulse-rate 100, respiration-rate 20. The urine, which *contained a small amount of albumin* and a trace of sugar, but no acetone, had a specific gravity of 1 020.

Before admission she had had dressings of magnesium-sulphate lotion; after admission glycerin and magnesium-sulphate paste was applied four-hourly She was given uleron 1 0 g. thrice daily. Pain was great and morphia needed to control it. During the next three days her condition steadily deteriorated, the local *infection spreading*, but at no time was there proptosis. Her temperature was swinging between 103° F. and subnormality. Attempts were made to arrest the spread of the infection by painting the healthy surrounding tissues with iodine and by exposing them to small doses of ultraviolet rays, but without success.

No blood-culture was made in this case, but the clinical condition *leaves little doubt that it* would have been positive.

On the 21st uleron was discontinued, and she was given M & B. 693 1 0 g. and sulphanilamide 1 0 g. six-hourly. There was, however, no sign of arrest She died on the 22nd.

CASE 5—A married woman, aged 22, was admitted on Oct. 1, 1938, with a boil on the right side of her upper lip. Swelling had spread and on admission it involved the whole of the right side of the upper lip *and the side of the mouth,* and there was much œdema of the inner aspect of the cheek It had started four days previously. There was soft œdema of the eyelids on the right side. She was very ill and mildly delirious Her temperature was 102 6° F., pulse-rate 108, and respiration-rate 21. Her urine contained a trace of albumin.

Treatment consisted in three-hourly applications of hypertonic saline and M & B. 693 1 0 g four-hourly by mouth. On the 2nd the inflammation was spreading outwards and upwards, and the angular vein on the right side was ligatured under local anæsthesia. Her temperature was swinging, but she had no rigors. *Blood-culture grew Staphylococcus albus* in twenty-four hours.

On the 3rd the temperature was falling but still variable. Her right eye was closed by œdema, and she complained of dysphagia and inability to open her mouth. Her right cheek was purple from poor circulation, and several small pustules had *appeared* *Several puncture incisions were made in the diseased tissue to* relieve the tension. In view of the positive blood-culture, 2500 units of anti-staphylococcus serum were given intravenously. Her temperature continued to fall and from this time did not again rise above *99 5°* F., except on two days at the *end of the second week*

By the 5th there was definite improvement in her general condition, though her left cheek was now a little swollen. Blood-culture remained sterile after one month She could open her mouth and swallow comfortably by the 8th; her right eye was *open* and *her cheek* was pink *instead of* dusky purple.

On the 12th she developed an erythematous rash on the trunk, and M. & B. 693 was discontinued. The total dose given was 72 g That evening her temperature was 101° F, but she did not complain of any symptoms Next day she was given sulphanilamide 1·0 g. four-hourly *for* twenty-four hours, and *after the 14th there* were no further rises of temperature of any importance Thenceforward her convalescence was uninterrupted and she was discharged from hospital with surprisingly little scarring of the face.

CASE 6.—A woman, aged 25, was *admitted on* July 3, 1939, with a history of *swelling of the* right cheek for seven days, *accompanied* by vomiting for the past two days On examination there was diffuse induration of the right side of the face, with œdema extending to upper and lower eyelids A small pustule was present on the upper lip just above the right angle of the mouth. *There was no proptosis*

Temperature 103° F., pulse-rate 130, and respiration-rate 28. A diagnosis of carbuncle of the face, with possible septicæmia, was made.

In view of the extent of the œdema and the fact that both eyelids were involved, the right angular vein was ligatured, under local anæsthesia, at the inner canthus on the day of admission. Local treatment consisted of cool sodium-sulphate compresses renewed every hour. The soluble preparation of M. & B. 693 was given intravenously four-hourly in 3 c.cm. doses diluted with 10 c.cm. of distilled water for four injections and continued four-hourly intramuscularly during the night and next day, for the patient could not keep anything down by mouth and swallowing was impossible. On the third day the patient was able to swallow, and M. & B. 693 was administered by mouth in 1·0 g. doses every four hours until July 13.

A blood-culture on the day of admission revealed the growth of *Staphylococcus aureus*, after eighteen hours' incubation, which proved on subculture to be a β-hæmolytic type. Blood cultures were taken daily for eight days. The culture was positive on the first three days but remained negative after that.

The patient was seriously ill till July 10, being often delirious and attempting to get out of bed. During this time the temperature varied between 103° and 97° F., with a pulse-rate varying between 136 and 90. By the 8th the patient had developed enlarged upper deep cervical glands, and the eyelids by this time were closed. Incisions in three different places in the face were made under evipan anæsthesia, for it was thought that suppuration had become localised, but only blood oozed from the incisions. Blood-counts were taken every few days, but no evidence of agranulocytosis was found.

After the 10th the facial condition gradually improved, until by the 17th no evidence of carbuncle could be found. The facial induration, the cervical glandular enlargement, and the œdema had completely disappeared. On the 14th, however, the patient complained of pain in the right thigh and groin. The temperature had remained normal on the 13th, but rose again on the evening of the 14th to 100° F. There was some inguinal adenitis on the right side, but radiography of the hip showed no evidence of osteomyelitis, or of arthritis. There was spasm of all muscles round the joint.

The administration of M. & B. 693 was begun again in 1·0 g. doses by mouth every four hours on the 18th, and continued until the 25th. The total dose given was 118 g. The pain was present until the 23rd, when it disappeared, the glandular enlargement gradually decreased, and free movement of the joint was now possible. A blood culture on the 20th proved negative. The temperature varied between 101° F. and normality until the 30th, since when it has remained normal, the patient now feeling well, eating well, and having no abnormal symptoms.

SUMMARY

Six cases of carbuncle of the face, including five in which staphylococcal septicæmia was proved, are described. Two of the patients, who were treated with M. & B. 693 in large doses at an early stage and by ligature of the angular vein on the affected side to prevent thrombosis of the cavernous sinus, recovered. The other four patients, who did not receive this treatment, died, although they had other drugs of the sulphonamide group.

The results of this small series of cases suggest that the early use of M. & B. 693 in large doses, together with early ligature of the angular vein, is of value in such cases.

We wish to thank Dr. L. C. Hadley, medical superintendent, for permission to publish these cases; Dr. A. P. M. Page, deputy medical superintendent, for his assistance; and Dr. E. M. Ward, pathologist, and the laboratory staff for their coöperation.

SEPTICÆMIA
DUE TO *STAPHYLOCOCCUS ALBUS*
TREATED WITH M. & B. 693

By S. GALEWSKI, M.D. Lausanne
RESIDENT MEDICAL OFFICER AT THE FRENCH HOSPITAL, LONDON
AND
HUGH S. STANNUS, M.D., Ph.D. Lond., F.R.C.P.
SENIOR PHYSICIAN TO THE HOSPITAL

So far as we are aware no cases of septicæmia due to the white staphylococcus treated with M. & B. 693 (Dagenan) have been published. The case described below appears worthy of record in view of the serious nature of the condition further complicated by a secondary hæmorrhagic meningitis, and the remarkable cure effected.

A nulliparous widow, aged 41, employed as a housemaid, was admitted to the French Hospital on May 29, 1939. She said that when she was 38 the catamenia, which had hitherto been regular and normal, became excessive. A large uterine fibroid was discovered and after its treatment with X rays the periods ceased rapidly and did not recur. Her present illness began ten days before admission with headache and feelings of weakness. Two days later she experienced a sudden sharp pain in the region of the right scapula; appetite had disappeared, she could not sleep, she felt extremely unwell, and the bowels had become obstinately constipated. She was sent to hospital with a diagnosis of nephritis, complaining of the pain in the right scapular region and of retention of urine with tenesmus.

On examination: temperature 99·8° F., pulse-rate 104, blood-pressure 180/100; heart and lungs normal. Palpation of the abdomen and examination per vaginam revealed a mass the size of a full-term fœtal head, obviously a fibroid, which filled the pelvis and reached the umbilicus; it was movable and not painful to pressure. The patient was unable to pass water, but catheterisation of the bladder yielded 650 c.cm. of urine, which contained albumin 10 mg. per 100 c.cm., some epithelial cells and red blood-cells; culture proved sterile. Examination of the nervous system showed nothing abnormal but there was some dilatation of the retinal veins of the left eye. Next day the temperature had risen to 103° F., the pulse-rate was 112, prostration was severe, and stiffness of the neck was apparent.

Lumbar puncture yielded a red-stained fluid, which showed a total protein content of 800 mg. per 100 c.cm.; total chlorides 720 mg. per 100 c.cm.; urea 40 mg. per 100 c.cm.; and 15 lymphocytes per c.mm. The Wassermann reaction was negative; xanthochromia was present, compatible with central hæmorrhage; tubercle bacilli were not found. No culture of the cerebrospinal fluid was made.

On May 31 the general condition appeared worse, the temperature and pulse-rate remaining about the same. The stiffness of the neck persisted. Blood-culture gave a single large colony of *Staphylococcus albus*. The same organism was now recovered in culture from the urine. Blood examination gave the following results:—

Red cells	[illegible]	Polymorphs	[illegible]
White cells	[illegible]	Lymphocytes	12%
Hæmoglobin	84%	Eosinophils	1%
Colour index	[illegible]		

The blood urea was 48 mg. per 100 c.cm. A mild papillœdema was present. Retinal tension was raised from the normal 20 to 75–80 mm., the blood pressure remaining at 120/100. At 11 A.M. on this day treatment with M. & B. 693 was instituted: 1 g. (2 tablets) every three hours.

Next day (June 1) the temperature had fallen to 101° F. Culture of the blood yielded a smaller [illegible] of *Staphylococcus albus*, but the urine was sterile. Lumbar puncture yielded a fluid containing albumin 650 mg. per 100 c cm. and total cell-count of 10 lymphocytes ; urea 40 mg per 100 c.cm. By the fourth day of treatment the temperature had fallen to 99 0° F. and the pulse-rate to 100, the stiffness of the neck was less, and the patient began to pass urine unaided. Culture of the blood and of the urine gave negative results, and the urine contained no abnormal elements. The cerebrospinal fluid, though still exhibiting a mild xanthochromia, was otherwise normal ; the leucocytosis had disappeared. The drug was continued for a further three days, during which time very rapid recovery, obvious from day to day, took place.

The sequence of events in this case seems to have been (1) retention of urine due to mechanical interference by a large fibroid ; (2) infection of the urinary tract by *Staphylococcus albus ;* (3) infection of the blood by the same organism, with a secondary hæmorrhagic meningitis ; and (4) rapid cure of the infection with M. & B 693, with quick recovery The total dose was 42 g.

HÆMOGLOBIN SOLUTION AS A BLOOD SUBSTITUTE

By Laurence O'Shaughnessy, F.R.C.S.
MAJOR R A M C ; CONSULTING AND THORACIC SURGEON TO THE BRITISH LEGION SANATORIUM , CONSULTANT SURGEON TO THE LAMBETH CARDIOVASCULAR CLINIC, L.C.C ;

H E. Mansell, B M Oxfd, F R.C P.
CONSULTANT CARDIOLOGIST, L C C , AND

David Slome, M.B., Ph D.
MACKENZIE-MACKINNON RESEARCH SCHOLAR ; HON. SURGICAL ASSISTANT TO THE LAMBETH CARDIOVASCULAR CLINIC, L C C.

A complete review of the experimental work on blood substitutes may be found in a recent paper by Amberson (1937) He concluded that dissolved hæmoglobin is not toxic to vertebrates *if it has been* properly freed from stromata, and if the solution is properly balanced. It is able both to carry oxygen and maintain the colloidal osmotic pressure. In mammalian preparations, in which all the normal blood has been washed out and replaced by hæmoglobin-Ringer-Locke solution, oxygen consumption continues at the normal level Hæmoglobin in solution, however, leaves the blood-vessels rather quickly, passing into lymph and urine and being taken up by cells of the reticulo-endothelial system, and is not, therefore, able to maintain life for more than 36 hours after complete removal of the normal blood.

We believe that despite the development of a technique for the storage of whole blood there will be an important future, *especially* in cases of acute blood loss, for a solution capable of ensuring normal tissue oxygenation. A 5 per cent hæmoglobin-Ringer's solution (Amberson-Hœber) possesses this property, as is well illustrated by the experiments reported by one of us (O'Shaughnessy 1939), in which it was found possible to maintain the higher cerebral function of cats and dogs by perfusing the brain with the solution while cardiac action was *temporarily* suspended Laked blood has been widely used for limb perfusion experiments, and it was confirmed (Slome and O'Shaughnessy 1938) that the hæmoglobin-Ringer's solution was capable of maintaining the integrity of the nerve-endings in a limb isolated from its normal blood-supply for a period of hours. In normal circumstances a limb deprived of its circulation becomes insensitive to traumatic stimuli after half an hour

One of us (L O'S.) had intended to publish separately the results of experimental work begun in 1934 under the direction of Sir Henry Dale and with the assistance of Dr. G. L. Brown and continued at the Buckston Browne Research Farm. In these experiments a series of animals—dog, cat, rabbit and monkey—were bled one third of their blood-volume and immediately received by intravenous injection an equivalent volume of the solution No ill effects were observed, and subsequent examination some months later showed that the kidneys were normal. In another series of animals the solution was found to be effective in maintaining the blood-pressure after hæmorrhage.

CASE-RECORDS

This brief account is restricted to the course pursued by four patients to whom the solution was given

Case 1.—A housewife, aged 48, was undergoing a course of radiotherapy for advanced carcinoma of the cervix uteri. She had lost no blood for over a week. Her blood-hæmoglobin was 42 per cent. After preliminary alkalinisation of the urine she received 600 c.cm. of the solution intravenously in 30 minutes, a rate of 20 c.cm. a minute. The transfusion was begun at twice this rate, and when she had received about 80 c.cm. she became flushed and dyspnœic, and complained of tightness in the chest and of pain in her back and loins. The pulse remained unchanged. These symptoms subsided soon after the transfusion was halted, and did not recur when it was resumed at the slower rate. At the end the rate was purposely quickened without the patient's knowledge, and she at once complained of tightness in the chest again There were no untoward after-effects The following morning (16 hours later) she declared that she felt better The blood-hæmoglobin was 44 per cent., the blood-plasma containing no free hæmoglobin. A catheter specimen of urine was hæmoglobin-free Two blood-transfusions were given three and four weeks later, and she was evacuated with a blood-hæmoglobin of 68 per cent An intradermal test for hæmoglobin sensitivity performed four weeks after *she received the solution was negative.*

URINARY FINDINGS IN CASE 2

Hours after transfusion	Amount of urine (ounces)	Hb.	Reaction	Deposit
2	28 (catheter)	− +	Alkaline	—
7	2	+ +	,,	—
13	1	+ +	,,	—
15½	4	+ +	Neutral	—
19½	5	+ +	,,	—
21	7	+	Acid	—
23	6	+	,,	—
28	8	+	Alkaline	−
30½	5	Trace	,,	−
33½	8	—	,,	−
39	8	—	,,	+
41½	8	—	,,	−

Case 2 —A spinster, aged 47, had been in hospital for 3½ months suffering from chronic myeloid leukæmia. Since admission her blood-hæmoglobin had fallen from 70 per cent. to 32 per cent , she had developed persistent albuminuria and on one occasion hæmaturia, and her general condition had deteriorated greatly. After preliminary alkalinisation of the urine she received 1 litre of the solution intravenously in 35 minutes without any symptoms other than a slight tightness in the chest and an exacerbation of her usual dry cough. A quarter of an hour after the transfusion the patient had a rigor lasting 20 minutes, during which the pulse-rate rose from 94 to 108 a minute. The urinary findings are given in table I. It will be seen that a deposit appeared when the urine was (inadvertently) allowed to become acid. This was found to consist of granular material chiefly in the form of loose tubular casts. The total amount of hæmoglobin excreted in the urine was estimated (as iron) and found to be only 20 per cent. of the amount given in the transfusion. No noticeable jaundice developed. The patient died 15 days later. At postmortem examination the diagnosis of leukæmia was confirmed, the spleen being enormous and the kidneys containing numerous leukæmic infarcts. No free iron was demonstrated in the liver or kidneys and only the usual small amount in the spleen. Microscopic examination of these viscera showed leukæmic changes only.

CASE 3.—A housewife, aged 32, was suffering from severe local necrosis following radium and X-ray treatment for advanced carcinoma of the cervix uteri. Her general condition was fair, but her blood hæmoglobin was only 26 per cent. While arrangements were being made for a continuous drip transfusion of blood and after preliminary alkalinisation of the urine she received 250 c.cm. of the solution intravenously in 60 minutes. Owing to the small size of *her veins and in order to avoid cutting down on them* a hypodermic needle was used, which accounted for the small amount given and the time taken to give it. She experienced no symptoms during the transfusion, but had a slight rigor at the end. The patient was incontinent of urine, and it is not known whether any hæmoglobin was excreted by the kidneys. She subsequently received a drip transfusion of 1500 c.cm. of blood, and her blood-hæmoglobin rose to 68 per cent. An intradermal test for hæmoglobin sensitivity performed a fortnight after she received the solution was negative.

CASE 4.—A bus conductor, aged 40, was suffering from carcinoma of the rectum. A previous laparotomy had revealed that the growth was inoperable and a colostomy had been performed. It was considered unlikely that he would benefit by radiotherapy. His general condition was poor, his blood hæmoglobin 30 per cent. and he was intolerant of iron by mouth. After preliminary alkalinisation of the urine he received 200 c.cm. of the solution in 30 minutes. *When about 50 c.cm. only had been given, he complained of pins and needles in his back and loins,* radiating round to the front. There was no dyspnœa, tightness in the chest, change of colour or of pulse. The symptoms subsided as soon as the injection was halted, and did not recur as long as a rate of 5 c.cm. a minute was not exceeded. At the end of 30 minutes he began a rigor, and the injection was stopped. There were no ill effects. He passed 25 oz. of alkaline urine during the next 12 hours, but it was hæmoglobin free. His blood hæmoglobin the following day was 34 per cent.

This very small series of cases serves only to indicate that the solution is tolerated by the human being even when seriously ill. Further work will show what value it has in tiding over for two or three days an otherwise healthy patient who has sustained a severe hæmorrhage. Present knowledge suggests that the solution can be stored for considerably longer than whole blood.

The findings in case 2 underline the importance of keeping the urine alkaline and support the hypothesis that hæmoglobin is taken up by the reticulo-endothelial system; for it is surely significant that the only patient of the four to excrete it freely in the urine was one in whom this system had been seriously impaired by leukæmia.

It should be stated in conclusion that there is no complete substitute for blood.

During the period of this experimental work one of us (L. O'S.) was receiving a personal grant from the Medical Research Council, to which he wishes to record his gratitude for scientific as well as financial help. He is also indebted to the president and council of the Royal College of Surgeons of England for the laboratory facilities put at his disposal. We wish to thank Dr. Trevan and Dr. White of the Wellcome Physiological Laboratory for preparing and supplying the solution given to these patients and Dr. W. Allen Daley for permission to publish this note.

REFERENCES

Amberson, W. R. (1937) *Biol. Rev.* 12, 43.
O'Shaughnessy, L. (1939) *Lancet*, 2, 989.
Slome, D., and O'Shaughnessy, L. (1938) *Brit. J. Surg.* 25, 900.

STORAGE OF TRANSFUSION PLASMA

BY F. A. KNOTT, M.D. Lond., M.R.C.P.
DIRECTOR OF THE BACTERIOLOGICAL DEPARTMENT, GUY'S HOSPITAL, LONDON, AND

F. H. KOERNER, D.M. Oxfd
ASSISTANT IN THE DEPARTMENT

IN resuscitation work there may be one or both of two distinct objectives: to combat shock and to counteract the effects of hæmorrhage. In shock the plasma protein falls while the red cell concentration and hæmoglobin percentage rise. Hæmorrhage by itself results in dilution of the blood with consequent falls in red cell count and hæmoglobin percentage. When shock and hæmorrhage are met with in the same patient, these tendencies partially counteract each other and interpretation of the results of blood tests may be difficult. Nevertheless, if careful note of the clinical condition is supplemented by hæmoglobin estimations or better still by red cell counts, it is usually possible to tell which effect is predominant. Falling values will indicate hæmorrhage and call for whole blood transfusion. The rising values seen in shock are, as clearly indicated by Walther (1937) and others, contra-indications to whole blood transfusion and are better rectified by the administration of plasma alone.

As was pointed out in THE LANCET of Oct. 14 (p. 840), widespread adoption of intravenous plasma therapy is now a practical proposition. With blood storage depôts now functioning everywhere, large quantities of group O plasma are becoming available. Stored whole blood is not satisfactory for transfusion after about four weeks. Evidence is accumulating that if, at the end of that time, the citrated plasma is drawn off and again stored in the cold, this cell-free plasma remains satisfactory for transfusion over many weeks. Already numerous transfusions of stored plasma have been given without significant reactions being reported.

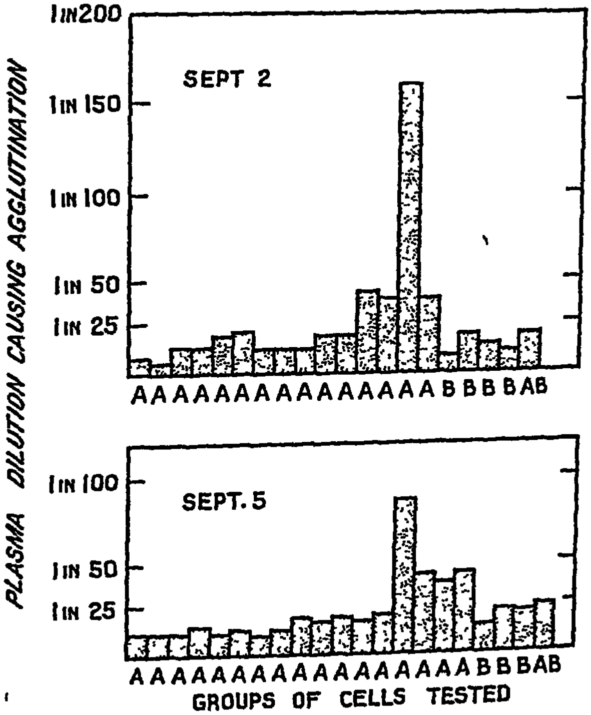
But it is possible that precautions may have to be taken. Although the group O cells of the universal donor are devoid of the agglutinogens A and B and are therefore inagglutinable by other human sera, the serum of these group O bloods contains the agglutinins α and β, sometimes in high concentration, and quickly clumps the cells of groups AB, A and B. If the agglutinin titre is high in the serum of a universal donor many of the recipient's cells, if he belong to a group other than O, may be agglutinated. Severe reactions from this cause have been observed with whole blood transfusions, and their likelihood is evidently greater if large quantities of group O blood are given as in the case of continuous drip transfusions.

The experiments described below were therefore made to see whether group O plasma, stored under the conditions at present standardised for emergency work, still contains agglutinins in concentrations likely to cause reaction.

PERSISTENCE OF AGGLUTININS IN STORED PLASMA

On Sept. 2 a number of bottles of citrated whole blood were collected from group O volunteers visiting the hospital The apparatus and technique recommended by the Medical Research Council were used The bottles were stored in the cold room for just over three weeks. Thereafter the plasma was aseptically drawn off from the 12 bottles of blood showing no marked hæmolysis and pooled A further 10 samples of blood collected on Sept. 5 were treated in the same way. The plasma was filtered (Berkefeld), put up in 8 oz screw-capped, flat bottles and returned to the cold room for further storage. Various dilutions of the plasma were made up at the same time with normal saline and stored in similar bottles. Appropriate tests of sterility were made.

After three weeks (six weeks after the original collection of the blood), samples of the stored plasma were removed and tested for agglutinins Allowing for the original dilution of the blood by the citrate in the collecting bottles, a series of dilutions of the pooled plasma was made up ranging from 1 in 50 to 1 in 100. At the time large numbers of volunteer donors were visiting the hospital for grouping, so that a series of fresh, citrated cell-suspensions of known group was available By mixing equal volumes of the above plasma dilutions and cell-suspensions, the agglutinating power of the plasma was tested against various group AB, A and B cells. Agglutination was observed on clean microscope slides at room temperature for 15 min. The results are shown in the figure. The height of the columns indicates the agglutinin titre of six-weeks-old stored plasma towards cell samples whose groups are indicated on the base line.



Charts illustrating, by the height of the vertical columns, the agglutinating power of two samples of pooled stored group O plasma on the cells of a series of possible recipients having groups A, B or AB

The total number of cell and plasma combinations tested was 41 In 33 agglutination did not take place with a greater plasma dilution than about 1 in 20 In 6 agglutination occurred with the plasma diluted 1 in 40 In 2 obvious clumping of the cells took place in dilutions as high as 1 in 80 and 1 in 160

From so small a number of tests it is impossible to infer the frequency with which, during plasma-transfusion, such specially active agglutination of the recipients' cells is liable to occur. But the experiment at least illustrates the possibility of reactions due to this cause when stored pooled group O plasma is transfused into patients of groups other than O, particularly if it is given continuously and in quantity as by drip methods.

SUGGESTED PRECAUTIONARY TEST

It seems unlikely that single administrations of plasma in quantities of 6 oz. or so to patients of other groups can be particularly liable to produce reactions, otherwise they would already have been noted. But the above results do suggest that when larger quantities are to be given it might be wise to make a preliminary test of the recipient's cells suspended in a dilution of about 1 in 50 of the plasma to be used. In any case the recipient's blood-group should be determined. The plasma at present available is nearly all from group O donors, and if the patient is also of this same group further preliminary tests are unnecessary. But if he is found to be of a group other than O, an agglutination test provides a safeguard.

To facilitate this the bottle of group O plasma which we are now supplying to the wards have, attached to the neck by a rubber band, a small sealed ampoule of the same plasma diluted 1 in 25 with normal saline After some citrated cells have been obtained from the patient's finger and his group determined, if this is other than group O, one drop of cell-suspension and one drop of diluted plasma from the ampoule are well mixed on a glass slide and watched for 15 min If there is no agglutination one may assume that the particular plasma-transfusion proposed is not liable to produce excessive agglutination of the recipient's cells. If agglutination does take place at this dilution (about 1 in 50), it is probably advisable to dilute the bottled plasma three or four times with normal saline and to give it slowly.

STORAGE OF PLASMA

In separating and storing plasma from bloods collected in the apparatus recommended by the Medical Research Council minor difficulties have been encountered owing to separation of fibrin after the plasma has been drawn off, passed through a Seitz filter to clear it and rebottled This fibrin separation continued in the cold room for several days in spite of repeated filtration It could, however, be prevented by diluting the plasma with sterile normal saline or by adopting Berkefeld instead of Seitz filtration This matter is at present being further investigated

CONCLUSIONS

Group O plasma is now available in large quantities as a result of the recently introduced standardised methods of blood-storage, but precautions may be necessary in using it for transfusion.

Group O plasma stored in the cold room retains its agglutinins for many weeks, and in a few cases pooled plasma has been found to agglutinate cells from persons of other groups in very high dilutions

In order to avoid reactions from this cause, it is suggested that before stored group O plasma is administered to patients of other groups the agglutinating effect of a 1 in 50 dilution of the plasma on their cells should be noted.

REFERENCE

Walther, W. W., *Lancet*, 1937, 1, 6.

PREVENTION OF FEAR IN CARDIAZOL THERAPY

BY PRELIMINARY ANÆSTHESIA WITH CYCLOPROPANE OR WITH NITROUS OXIDE

By W. Lindesay Neustatter, B.Sc., M.B. Lond., M.R.C.P.

PSYCHIATRIST UNDER THE E.M.S. AT GUY'S CASUALTY CLEARING STATION; PHYSICIAN IN CHARGE OF THE DEPARTMENT OF PSYCHOLOGICAL MEDICINE AT QUEEN MARY'S HOSPITAL FOR THE EAST END, LONDON, AND

Harry Freeman, A.B., M.D. Harvard

INTERNE TO THE RESEARCH SERVICE AT THE WORCESTER STATE HOSPITAL, MASSACHUSETTS

CARDIAZOL treatment, especially with patients who are not retarded or confused, sometimes causes unpleasant sensations before consciousness is lost. These sensations, though generally indescribable, make the patient disinclined for further treatment. Nausea, vertigo and a feeling of fear, which, however, does not appear to be the common fear of impending death, are the main sensations, and their abolition is desirable if full coöperation is to be secured.

The choice of the method of diminishing consciousness as a preliminary to cardiazol therapy involves technical difficulties. The analgesic should be easily controllable in its depth and duration; it should not counteract the convulsive effects of cardiazol; it should not constitute a hazard either alone or in combination with cardiazol; and it should be easily administered. Most intravenous anæsthetics have too prolonged an action or prevent the onset of convulsions—e.g., sodium amytal (Cohen 1939[1]). The possibility of habituation with frequent injections is an objection to morphia. A preliminary insulin coma is too long and somewhat hazardous.

A gaseous anæsthetic therefore seems to be indicated. It is theoretically possible to administer it until consciousness is lost and then to withdraw it, so that cardiazol can be injected at any point in the stage of returning consciousness that seems most suitable, the ideal moment being presumably one at which the minimal dose of cardiazol can be given. Chloroform and ethyl chloride are too dangerous. Ether is unpleasant and in repeated doses may have a deleterious effect on the liver. Two apparently suitable anæsthetics are nitrous oxide and cyclopropane. Nitrous oxide is readily available and requires no unusual apparatus. However, for anæsthesia an anoxæmia is necessary which added to that produced by cardiazol is undesirable. Cyclopropane is relatively non-toxic and rapid in action and contains 80 per cent. of oxygen in an anæsthetic mixture; but it is liable to explode and requires special equipment which is not present in many hospitals.

TECHNIQUE

As a preliminary to either anæsthetic, the patient was not given breakfast and atropine sulphate gr. 1/100 was administered subcutaneously. After a reassuring explanation of the procedure, the mask was placed on his face and the anæsthetic administered to a point at which the lid reflexes were abolished. As soon as the patient was relaxed, a tourniquet was applied and a hypodermic needle, attached to the syringe containing the cardiazol solution, was inserted into a brachial vein exactly as in taking a sample of blood. The needle once in, the tourniquet was removed and the anæsthesia discontinued.

With cyclopropane it seemed that the optimal time for the injection of cardiazol was when the patient first moved his eyelids either spontaneously or in response to command. As a rule this happened about a minute after the patient began to breathe room air. The convulsive dose of cardiazol after anæsthesia was never more than 2 c.cm. greater than that without preliminary anæsthesia. In no case did the dose exceed 9 c.cm. If the initial dose was not effective in producing a convulsion, the anæsthesia was resumed and the dose of cardiazol increased by 1 c.cm. When this was unsuccessful, the treatment was resumed two days later with a further increase of 1 c.cm. in the dose of cardiazol.

With nitrous oxide and oxygen the optimal moment for injecting the convulsant seemed to be at a slightly later stage of returning consciousness—that of head movements—for on several occasions no results followed injections at the same point as with the cyclopropane. Whether this difference depends primarily on the reaction to the anæsthetic or is an individual variation is uncertain. With nitrous-oxide anæsthesia the convulsive dose was the same as that required without anæsthesia.

RESULTS

The duration and severity of the convulsion seemed to be unaffected by the preliminary anæsthesia. With cyclopropane it was noted consistently that the deep greyish blue cyanosis usually seen after the administration of cardiazol was much less, the patient's colour being only slightly less pink than normal. It is possible that this is due to the saturation of the tissues by the high percentage of oxygen in the anæsthetic mixture. The patients treated with nitrous-oxide anæsthesia had approximately the same degree of cyanosis usually seen after cardiazol. In these cases we administered pure oxygen for a few breaths in the interval between the discontinuance of the anæsthesia and the injection of cardiazol to minimise the cyanosis produced by the anæsthetic. No untoward complications were seen as a result of the anæsthetic.

In 6 cases cardiazol therapy was preceded by a preliminary anæsthesia, with cyclopropane in 3 cases and with nitrous oxide and oxygen in the other 3. In 5 of these patients anæsthesia was induced because of their dread of cardiazol therapy as a result of previous injections. Of the 6 patients 3 had catatonic schizophrenia and 3 severe depression. In all the cases there was some improvement, and strikingly so in 2 of the depressed patients (the maximum dose and the number of injections were approximately the same as without anæsthesia); hence the results seemed to be comparable in our experience to that produced by cardiazol alone. Since in this report we are discussing the practicability of an adjuvant to cardiazol therapy in selected cases, seeking only to determine whether the technique inhibits the therapeutic effect of cardiazol, no further details of the case histories are presented.

DISCUSSION

This report embodies observations on only a few patients but they indicate that a preliminary anæsthesia can be utilised in cardiazol therapy without necessitating any great increase in the dosage of the convulsant drug. Moreover, and this is the point at issue, from such information as could be derived from the patients, no terrifying sensations were experienced, and only one patient was afraid of the anæsthesia It is obvious that this procedure is necessary *only* in selected cases where the dread of cardiazol therapy makes the patient unwilling to have further treatment Whether the elimination of such fear prevents the patient from resolving his guilt feelings and thus inhibits the therapeutic result is a question that cannot be answered from the present data It is true, however, that in these 6 patients the usual degree of improvement following cardiazol therapy was noted; therefore the preliminary anæsthesia apparently did not alter the efficacy of the treatment

---

[1] Cohen, L. H., *J. Lab. clin. Med.* 1939, 24, 641.

The practicability of this procedure having been demonstrated, it is suggested as an adjuvant method to cardiazol therapy for outpatients or office patients who, because of the unpleasant sensations, might not return for such therapy. Such patients might include not only mild schizophrenics but also depressed subjects. Thus the need for admitting such patients into hospital for cardiazol therapy may be lessened.

SUMMARY

General anæsthesia can be induced as a preliminary to cardiazol therapy without interfering with the production of a typical convulsion and necessitating at most a slight increase in the convulsant dose. It makes cardiazol therapy more agreeable for the patient by abolishing the sensations of fear. Cyclopropane is in many ways the more desirable anæsthetic, but nitrous-oxide anæsthesia, because of the simplicity of its administration, may be more practicable

We wish to thank Dr. William A. Bryan, medical superintendent; the staff of the Worcester State Hospital, Massachusetts, for placing facilities at our disposal; and Dr R. Guidone for assisting on several occasions.

AUTOMATIC TIDAL DRAINAGE OF THE BLADDER

By R S. Lawrie, M.B *Lond.*

AND

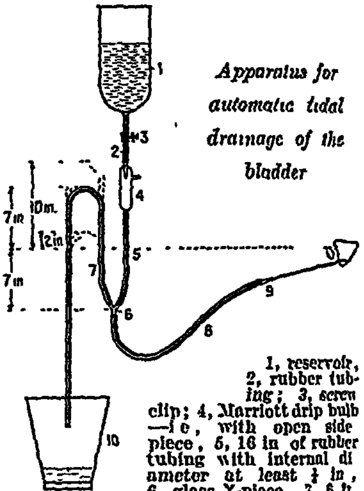
P. W Nathan, M B Lond

HOUSE-OFFICERS AT MIDDLESEX HOSPITAL, LONDON

Tidal drainage of the bladder was introduced by Donald Munro, of Boston, U.S A He devised an apparatus which distended the bladder to a suitable degree with antiseptic solution and then automatically emptied it He has established the value of the method beyond doubt; and it is probable that tidal drainage would be used more often, as it deserves to be, if a simpler apparatus than Munro's were employed. With this purpose, we have devised an apparatus with exactly the same action (see figure).

The measurements employed by us need not be followed exactly The apparatus is set up according to the diagram. The siphon tube (7) may conveniently be fixed by strapping to the drip-bulb. Its lower end should be above the surface of the fluid in the bucket. The tube (8) and glass connecting-piece (9) must contain no air-bubbles; air may be excluded by spigoting the catheter as soon as it is passed, running the antiseptic slowly, and inserting the glass connexion into the catheter while fluid is gushing from both the catheter and the glass connexion The catheter should not be smaller than size 8 (English), Munro recommends that it should be changed once a week

Tidal drainage imitates the natural physiology of the bladder. The bladder is filled at a slow-drip rate, as it fills, the intravesical pressure rises gradually until it reaches the level of the siphon-tube Siphonage then begins and continues until, when the bladder is empty, the siphon-tube is filled by air entering through the side-piece of the drip-bulb Siphonage then ceases, and the bladder starts to fill again. At this moment there should be no residual urine in the bladder, a fact which may be confirmed by disconnecting the catheter This cycle continues as long as there is fluid in the reservoir



Apparatus for automatic tidal drainage of the bladder

1, reservoir, 2, rubber tubing; 3, screw clip; 4, Marriott drip bulb—i e, with open side piece, 5, 16 in of rubber tubing with internal diameter at least ¼ in, 6, glass Y-piece, 7, 6 ft of rubber tubing with internal diameter ¼ in.; 8, 3 ft of rubber pressure-tubing with internal diameter ¼ in, 9, glass connecting piece, 10, bucket

The maximal negative pressure acting on the bladder is equal to the vertical height of the symphysis pubis above the Y-piece, we have found 7 in a suitable height. The maximal intravesical pressure never rises above the vertical height of the apex of the siphon-tube above the symphysis pubis The exact height depends on the patient's comfort and the condition under treatment A height of about 7 in. is correct for the normal bladder, 2 in for an atonic bladder, and 10 in or more for a hypertonic bladder. It is impossible for the apparatus to distend the bladder to a greater pressure than the height of the siphon-tube A suitable rate for the flow of antiseptic solution is 60 drops a minute. Since it is in contact with the vesical mucosa for at least twenty three hours out of the twenty-four, a mild solution should be used. We used a 1½ per cent. solution of boric acid or, when clots were likely to form, a 3 per cent. solution of sodium citrate, both of which are isotonic with tissues

The following are the chief applications of tidal drainage

(1) To prevent the occurrence of infection; it is certainly a life-saving measure in "neurological bladders," as Munro's cases show.

(2) To control the infection of primary cystitis, after oral therapy has failed.

(3) To increase the capacity of a contracted fibrotic bladder by progressively increasing the height of the siphon-tube over a period of weeks

(4) It may be used wherever an indwelling catheter or repeated catheterisation is indicated, with the advantages that antiseptic solution is almost continuously in contact with the bladder walls, and that it will not allow the progressive contracture of the bladder which occurs with an indwelling catheter draining away continuously.

BIBLIOGRAPHY

Munro, D. (1936) *New Engl. J. Med.* 215, 786
— (1936) *J Urol* 36, 710
— (1937) *Amer. J Surg* 38, 120
— and Hahn, J. (1935) *New Engl. J. Med* 212, 229.

REVIEWS AND NOTICES OF BOOKS

Blood Transfusion

By VICTOR HORSLEY RIDDELL, M D Camb, F R C S, assistant surgeon and lecturer in operative surgery, St George's Hospital, London, assistant surgeon, Royal Waterloo Hospital, London, consultant, British Red Cross Transfusion Service London Humphrey Milford, Oxford University Press 1939 Pp 370 21*s*

THIS excellent book could hardly have been published at a more opportune time Mr Riddell gives a full account of the practice of blood transfusion and does not neglect discussion of related theoretical issues He wisely makes his own experience the chief source of his material and has the courage not to burden his text with multiplication of methods One useful feature is the discussion of rate and volume in transfusion The practice of "giving a transfusion"—meaning about a pint of blood in about half an hour—to all cases irrespective of their particular features is passing, Mr Riddell's book will help the growing adoption of rational principles. Blood transfusion properly used is a valuable method of treatment Too often it is so employed that it is either positively dangerous or only very partially effective Doctors should understand clearly the indications for transfusion, and the principles governing the rate of flow and the volume Questions of technique are secondary, though the author gives them ample attention, his descriptions and illustrations leave no doubt as to his exact meaning His account of drip transfusion is excellent, his view is that all transfusions should be of the slow drip type unless used for immediate replacement in acute hæmorrhage Complications and difficulties are accorded adequate space

The Races of Central Europe

A footnote to history By G M MORANT D Sc London George Allen & Unwin 1939 Pp 163 5*s*

Dr Morant has chosen a most opportune moment for producing this book To the physical anthropologist, who just now is rather in the background, it will be especially welcome, while the few craniologists who still survive will feel as they read it that they have not lived and worked in vain The general reader and let us hope the statesman and politician will probably find the conclusion and epilogue the *most attractive part of the book and they will be* struck by the clarity with which the author sums up his conclusions Alas, not all the diagrams reach the same level of excellence as the letterpress As most old teachers know a diagram should be bold and clear and should not attempt to tell too much many of these are trying to the eyes and sometimes so involved that much time has to be spent in understanding all that their delineator means them to show

The reader as he follows the text will learn the unfortunate truth that language is no safe indication of race and that boundaries founded on it generally lead to trouble sooner or later He will also learn that anthropology shows a better way, for Dr Morant finds that in the cephalic index—a blessed phrase that is in everyone's mouth nowadays, though there is often some little haziness as to what it means—combined with the blood groups, the true racial affinities of these mid European peoples may be determined Quite a large part of the book is taken up in explaining, criticising and safeguarding this cephalic index and in pleading that at least fifty records are needed before a safe average is reached Certainly it seems worthy of its well known reputation as "the anthropologist's sheet-anchor", and now that the testimony of the blood groups corroborates its information it is more valuable than ever

In the epilogue Dr Morant looks forward to a time when the teachings of anthropology shall have reached writers and readers of newspapers, then "the absurdity of all racial conflicts would be apparent" We hope he may be right, in any case he has in this interesting little book done his share towards attaining so happy a result

Abdominal Injuries of Warfare

By GORDON GORDON TAYLOR, O B E, M A Aberd F R C S, F R A C S, senior surgeon and lecturer in surgery, Middlesex Hospital, London Bristol John Wright and Sons 1939 Pp 87. 10*s* 6*d*

MANY of the younger surgeons who are preparing to deal with war casualties have never seen a perforating wound of the abdomen They know in theory the surgical principles which govern the treatment of these injuries, but every surgeon has often been forcibly reminded of the inadequacy of such knowledge when he is actually faced with a case for the first time Those who have had wide experience can help a lot by passing on what they have learned, and Mr Gordon-Taylor is one of them The text of his book is concise, his advice practical, and there are a number of useful case-records He describes operative technique in considerable detail, but more details still might have been given without unduly burdening the text—for instance, when he says that a single layer of suture suffices for the small bowel it would be interesting to know whether he prefers Maunsell's or Connell's suture. But few other criticisms can be levelled against this wise little book The illustrations many of them from specimens in the war collection of the Royal College of Surgeons, are excellent

Radiotherapy in Sinusitis

By W ANNANDALE TROUP M C, M D St And London Actinic Press 1939 Pp 51 3*s* 6*d*

Dr Troup is an enthusiast and writes in his preface of the uniformly good results achieved in cases of sinusitis by radiotherapy He describes briefly the use of ultra-short wave therapy, but prefers local irradiation by infra red rays, together with the application of ultraviolet rays to the nostrils and nasopharynx with the Kromayer lamp and general ultraviolet irradiation Treatment is given daily five or six times, and then three times a week, the total number of treatments seems to range from twelve upwards, one patient having as many as forty-one

The first chapter is occupied by quotations from various authors who mention, often vaguely, the use of physical therapy in the treatment of sinusitis the second sets out the physiological action of radiotherapy, the third, the most useful, contains an account of the author's technique, the fourth consists of three pages on adjuvants to treatment, but refers to none of the measures usually adopted by the rhinologist Finally, Dr Troup describes six cases treated by radiotherapy, but it is doubtful whether these or the book as a whole will enable the practitioner to form an opinion of the value of this method

Le cancer de l'estomac au début

By RENÉ-A. GUTMANN, médecin des Hôpitaux de Paris; IVAN BERTRAND, directeur à l'École des Hautes Etudes; TH. J. PERISTIANY, assistant à la consultation de gastro-entérologie de la Salpêtrière. Paris: G. Doin et Cie. 1939. Pp. 493. Frs.360.

THE object of this important work is to stress the vital importance of early diagnosis in cancer of the stomach, and to show how clinical findings and radiological examination can demonstrate the very early lesion. Dr. Gutmann and Dr. Peristiany describe the clinical form of the disease and then, after a section on radiological technique by Dr. J. Garcia-Calderon, the radiographic appearances which correspond to the different types. Finally, Dr. Bertrand gives the pathological anatomy and histology of a number of representative cases. The chief impression left is one of attention to detail. All the possible forms of gastric cancer are grouped under three headings—latent, painless and painful The authors point out that in many cases the symptoms are not sufficient to send the patient to the doctor before the disease is far advanced, but they believe that where gastric symptoms are present radiography, in experienced hands, offers the best hope of an early diagnosis. Lack of flexibility, small changes in contour and minute filling defects are all significant, and, though appearances on the screen may be helpful, films with a sharp image, good detail and contrast are of much greater value.

The numerous illustrations make a collection of typical radiogram of cancer of the stomach, with operative verification, which will be an education to those who need an intimate knowledge of the many manifestations of gastric disease. Other methods of investigation—gastroscopy, gastric chemistry and the tests for occult blood—are discussed, and there is a short section on surgical treatment. Many beautiful microphotographs illustrate the last section, which mainly deals with the determination of the point where it can be confidently accepted that a gastric ulcer has undergone malignant transformation.

Chemist's Dictionary of Medical Terms

(6th ed.) London: *Chemist and Druggist*. 1939. Pp. 304. 8*s*. 6*d*.

THERE is evidently a demand for any book which runs into a sixth edition and demand is presumptive evidence of need. In the very nature of things pharmacists come into contact with doctors, but whether "abactus venter" and "zymotic papilloma"—the alpha and omega of this dictionary—or many of the thousands of medical terms which come between enter into the medico-pharmaceutical conversations is a question which could only be answered satisfactorily by a plebiscite of the members of the two callings. The work of compilation has been done thoroughly and there is certainly no waste of words. Thus dicephalous could not be defined more briefly than "two-headed," psellism than "stammering," or odontiasis than "teething"

Common Skin Diseases

(5th ed) By A. C. ROXBURGH, M.D. Camb., F.R C.P, physician in charge of the skin department and lecturer on diseases of the skin. St. Bartholomew's Hospital, London. London: H. K Lewis and Co. 1939 Pp. 416. 15*s*.

THIS elementary textbook forms a sound introduction to dermatology for students and covers most of the conditions the general practitioner is likely to want to tackle himself. For Dr. Roxburgh has selected his "common" diseases carefully and has written about them in a lucid and readable manner. His style is somewhat dogmatic—an unusual characteristic in books on skin diseases—but students and general practitioners will sacrifice a little accuracy for a solid basis on which to build. X-ray treatment is recommended a shade too freely throughout; the modern trend is to keep this therapeutic weapon in reserve rather than in the front line, notable exceptions to this being in chronic lichenified dermatitis, chronic patchy eczema, and lichen simplex chronicus, where X ray is the treatment of choice. The ingenious theory here accepted that seborrhœa may be caused in an infant by dandruff falling from the head of its mother or nurse appears to lack definite proof. Dr. Roxburgh makes no mention of streptococcal tonsillitis being a frequent ætiological factor of erythema multiforme, and he includes recurrent scarlatiniform erythema in the chapter on the primary erythrodermias His book is profusely illustrated with first-class photographs

Antenatal and Postnatal Care

By FRANCIS J. BROWNE, M.D. Aberd., D.Sc Edin., F.R.C.S.E., F.R C.O.G., professor of obstetrics and gynæcology, University of London; director of the obstetric unit and obstetric surgeon, University College Hospital, London. London· J. and A. Churchill. 1939. Pp. 622 21*s*

THIS edition has been thoroughly revised, with two new chapters, one on heredity, which contains an interesting account of mendelism and the inheritance of morbid characteristics, and another on unsuccessful pregnancy. The excellent section on the toxæmias of pregnancy includes the results of an extensive follow-up of toxæmic patients conducted under Professor Browne's supervision at University College Hospital since 1926. This seems substantially to support the view that pregnancy may be regarded as one of the most delicate tests of renal function, in the presence or absence of any previous history of nephritis Among the book's other excellent features are Dr. John Boycott's chapter on the anæmias of pregnancy, now rewritten, and Dr R W A. Salmond's account of the uses of radiology in obstetrics Professor Browne's is without doubt one of the best works on this subject

The Fetal Pig

An Introduction to Mammalian Anatomy By HAZEL E. FIELD, Ph.D., associate professor of biology at Occidental College, Los Angeles London: Humphrey Milford, Oxford University Press. 1939. Pp. 53. 3*s*. 6*d*.

THIS little book appears to be written for some sort of university course far removed from ordinary biology or medicine It claims that such a course will make those that attend it "more intelligent citizens, more understanding of the work of the nurse and the physician, and less easily misled by the sales talks of nostrum vendors and the health faddists" Without knowing the other constituents of the course it is impossible to say how far Professor Field's little book fulfils its purpose It seems obvious, however, that so very slight an account of the dissection of an unborn pig can hardly in itself prove a prophylactic against the "sales talks" of anyone. The author appears to assume that it will be used by students "who will probably never dissect any more animals" and so it is difficult to see what place it could fill in any of our British universities As an elementary guide-book to the main anatomical features of the unborn pig, designed to assist those undertaking its dissection, it is plain and concise. The description is clarified by 16 simple figures, and a combined glossary and index is added.

THE LANCET

LONDON   SATURDAY, NOVEMBER 18, 1939

THE WORKMAN AND HIS JOB

IN its twenty-one years of life the interests of the Industrial Health Research Board have widened.[1] While the board have never ceased to inquire into the effects of environment on health and working capacity, they have at the same time progressively concerned themselves with the general problems of the standard of fitness both of the entrant to industry and of the established worker. With those problems in mind they have set on foot inquiries into the physique of men and women in industry, into vocational guidance and selection directed towards preventing the round peg finding its way to the square hole, into the temperamental qualities which go to make "industrial misfits," and into the special problems of accident proneness. The difficulty is to obtain reliable data for measuring the fitness of the worker in different industries at different times.

Two crucial factors are involved—the physical and the statistical. There is, and can be, no simple definition of physical fitness, though there must be a connexion between physique and fitness, measurements of height and weight and strength cannot be combined into a single index of fitness. The short man with no great physical strength may be quite unsuited to the police force or the army but be well adapted to many industrial occupations and maintain a high standard of health at his work. In time it may be possible to lay down reasonable standards for various occupations—for light, moderate, and *heavy work—but at present it might be more* profitable to turn to a simpler concept, namely the presence or absence of mental and bodily defects or disease. By systematic clinical examination of workers it should be possible to determine the incidence of defined defects to see whether their frequency is increasing or decreasing and to assess the most profitable means of preventing them. Such measures of incidence would undoubtedly contribute to knowledge of the specific conditions leading to 'unfitness.' At this point the statistical aspect intrudes. Taking first the established worker to produce these figures of incidence the fundamental requirement is the examination of a large and representative sample of the industrial workers of the country, including men of all ages, areas and types of employment, those who happen to be unemployed at the time of the survey, and those who are temporarily or chronically incapacitated. But here the inquirer has serious obstacles to surmount. Compulsory powers of examination do not exist, and workers are often prejudiced against any form of examination, they are apt to fear that *if they do not do well in the tests they may lose* their jobs. On the other hand, the examination of a sample of volunteers might be quite unrepresentative of the total body of men.

If the inquirer's attention is transferred to the entrants to industry, the obstacles to exact inquiry are nearly as great. Under the new Factories Act the examinations of would-be entrants to industry are much more thorough than formerly, and may be expected eventually to provide valuable data, as do now the school-leaving medical examinations, but in the meantime the only source available for such studies appears to be the *records of the large industrial organisations which* demand a full examination of applicants for employment. These records may not supply an accurate picture of the whole universe of entrants to industry nor one comparable from one branch of industry to another. The requirement of a medical examination must necessarily lead to some self-selection on the part of the candidates, and this self-selection may ebb and flow with the state of the labour market and the possibilities of alternative employment. Often, too, the applicants have passed before a lay committee before reaching the doctor. It seems likely that the picture finally presented to the medical officer will err on the side of optimism, but to what extent it will err, and whether equally from one time to another, is indeterminate. Finally, any comparisons of the incidence of specific defects between now and some past period calls for carefully maintained standards and definitions if it is to give any valid evidence of improvement or deterioration.

The ideal, of course, is the proper examination of the entire universe of entrants, and, at intervals, of established workers. This desideratum exists for the school child, for whom the consensus of data shows a rising standard in health and physique. It does not yet exist for other groups. Data about the physical state of a large cross-section of the population, including defects and causes of rejection, have only once been obtained in this country by the Ministry of National Service in 1917–18. In that case the sample was not really unselected. Now all men of 20–21 are having to undergo an examination assessing their fitness for military duties, and this time the sample is as nearly as possible unselected. Here is an opportunity to obtain a real picture of the state of health of young men at or about the age they enter industrial life, which would provide a valuable base line for future comparisons. In selecting recruits or in selecting entrants to industry, however, too much stress must not be laid on physical attributes, for in both the candidate's mental make-up is equally important. The mentally unstable youth who in slighter degree merely makes an inefficient soldier, and who under strain becomes a potential victim to neurosis, is the industrial "misfit." In greater degree he is the psychotic who may make a fine soldier or be a candidate [illegible] and end up in a mental hospital. Here too the experience of the military medical boards may help the Industrial Health Research Board in their investigation of a problem which has exercised their minds from the start of their work

---

[1] An account of the board's report for 1938–39 appears on p 1085.

GENERALISED STAPHYLOCOCCAL INFECTION

EVERY student knows that a staphylococcal infection usually results in a localised abscess, in contradistinction to the spreading or invasive lesion characteristic of the streptococcus. But at times the staphylococcus produces a generalised infection which from the occurrence of metastatic abscesses is usually called pyæmia, although the generic term septicæmia—indicative of a widespread infection of the tissues and not merely the occasional spilling of organisms into the blood-stream from a local focus (bacteræmia)—may be justifiably used. Staphylococcal lesions in two sites—the face and the bones—are particularly apt to be followed by a generalised infection, and the results are usually disastrous. The case-fatality rate of staphylococcal septicæmia has varied in different series from 66 to 90 per cent., the prognosis is worse after carbuncle than osteomyelitis, in the very young and the aged than in adolescents, and in the presence of complicating disease, especially diabetes [1] But, as the late Dr A P. BEDDARD used to say, in staphylococcal septicæmia the betting is on the staphylococcus every time.

Treatment of staphylococcal septicæmia aims at (*a*) eradicating the source of infection and (*b*) sterilising the blood-stream It is not always easy to deal with the local focus, particularly in lesions about the face, and in such cases ligature of the angular vein is recommended to prevent the spread of infection to the cavernous sinus In osteomyelitis, too, there is a school of thought that advocates non-operative treatment, but in general the principle of removal of the infecting focus which is feeding the blood-stream with septic emboli must be regarded as sound Attempts at sterilisation of the blood have in the past been mostly unsuccessful, although repeated blood transfusions or the injection of staphylococcal antitoxin has sometimes seemed to do good.

It was natural, therefore, that the sulphonamide group of drugs should be tried in these severe infections Experimentally, in staphylococcal infections of mice, M & B 693 and possibly Uleron have been more effective than sulphanilamide itself, and this finding is now being supported by clinical observation. MITCHELL [2] reported the successful treatment of five severe cases of osteomyelitis (in two of which the affected bone was not drilled) with uleron; on the other hand, WADE [3] has recorded a case of staphylococcal septicæmia which failed to respond to uleron but appeared to react to M. & B 693. In our present issue Dr. ABRAMSON and Dr. FLACKS report six cases of severe carbuncle of the face, of which the first four patients—three of them treated with proseptasine or uleron—died, whereas the other two who were given M. & B. 693, and had the angular vein on the affected side tied, both lived. Staphylococcus antitoxin was given to one of the patients who recovered (and also to one who died), and in view of the part which antitoxic immunity possibly plays in limiting the spread of staphylococcal infection,[4] a combined serum and chemotherapy would seem worth a more extended trial in this as in other bacterial infections. In the fifth case of this series and in the case reported by Dr GALEWSKI and Dr STANNUS on p. 1067, *Staphylococcus albus* was the organism recovered from the blood While white variants of *Staph. pyogenes* do occur, the possibility of such strains being non-pathogenic contaminants must be considered, and it becomes essential to test their pathogenicity, which can be done by the simple coagulase test [5]

Isolated instances of cure apparently effected by a particular treatment may not mean much, but the clinical evidence now accumulating about the benefit of chemotherapy in staphylococcal septicæmia encourages a more optimistic prognosis. Its comparatively long course, however, must not be allowed to tempt the clinician to give these new drugs for longer periods than have been found safe in other infections.

GENES AND HORMONES

FEW are qualified to discuss the relationship of genetic and endocrine factors and the ways in which their complex interaction in the higher vertebrates may have arisen As an endocrinologist who is also a geneticist Professor DANFORTH of Stanforth University, California, is able to treat this difficult subject in a particularly refreshing and stimulating manner.[6] Dealing first with genes, he emphasises the modern tendency to think of the whole gene complex as a unit, in which, for the production of a given trait, any particular gene has perhaps no more intrinsic importance than many others Under conditions other than those holding in a particular organism, the seemingly significant gene for the same trait might be an entirely different one, and one should no longer speak of *the* gene for a trait as though that gene and no other could or does produce the effect studied Genes and cytoplasm are related in a kind of functional symbiosis; the actual anatomical and physiological reactions are a function of the cytoplasm, but the behaviour of the cytoplasm is conditioned by the genes. The reactivity of the cytoplasm to the genes may be the result of gradual cytoplasmic evolution, and the cytoplasm may adjust itself to already existing genes, some of which become effective in individual development only when the cytoplasm has gone through certain preliminary phases This adjustment of cytoplasm or of tissue to external or internal stimuli is better seen with the hormones It appears unlikely that hormones have been evolved in such a manner as to stimulate pre existing tissues of a given composition On the contrary, there is good reason to believe that many hormones existed before the tissues that they now stimulate, and that it was the tissue that evolved the power to utilise or respond to the hormone A *striking example of this*, which Professor **Danforth** might well have quoted, is the production of prolactin—the hormone which in mammals stimulates the secretion of milk—in reptiles, amphibians and fish It has no apparent function in these animals, and certainly cannot be concerned with lactation!

---

[1] Mendell, T. H, *Arch intern Med* June, 1939, p. 1068.
[2] Mitchell, A, *Brit. med. J.* 1938, 2, 1200
[3] Wade, H. J., *Lancet*, April 1, 1939, p 756
[4] Downie, A W., *J Path. Bact* 1937, 44, 573.
[5] Cruickshank, R, *Ibid*, 1937, 45, 295
[6] Danforth, C H, Harvey Lectures, 1938-39 Baltimore, Williams and Wilkins Co; London, Baillière, Tindall and Cox 1939 Pp 279 18s (p 246).

The sharp line of demarcation that it has been customary to draw between vitamins, genes and hormones does not seem likely to remain tenable Organisers also appear to be only components, however necessary, of normally developing cells Professor **Danforth** suggests that at least some of the vitamins are merely substances upon which protoplasm has become dependent through evolutionary adaptation, and that hormones may be either rather complex vitamins, which the body has learnt to synthesise, or metabolic components of the internal environment to which there have been evolutionary responses analogous to those elicited by factors in the external environment In this connexion, one is reminded of A S **Parkes**'s remark that the substances we now know as hormones were probably once waste products for which animals, in the course of evolution, have acquired a use [2]

Particularly instructive is the relation of genes and hormones in the determination of sex The biological importance of sexual reproduction, which provides a means for combining in one individual desirable characters from many sources, has long been recognised It now appears that sex starting as a difference between gametes and evolving into a difference between individuals, may now be determined either by genetic or hormonal influences, or by a combination of the two In either case, **Danforth** believes, the reaction is most simply regarded as a matter of protoplasmic adjustment where the emphasis should be placed not on the stimuli but on the protoplasm that integrates and utilises them The two modes of response have often developed side by side in the same stock for example the dimorphic plumage types of birds may be found to depend either upon genetic or endocrine stimuli for their production Thus in pheasants four distinct types of plumage are found corresponding to the four possible combinations of male and female hormone, and male and female cytoplasm and genes whereas in the dove sex differences are regulated solely by genes, and in the brown leghorn fowl solely by hormones Once more we are led to suppose that hormones should be regarded as essentially non specific substances to which tissues of different species may or may not develop a capacity to respond, each new adjustment has perhaps come about through a chromosomal alteration which imparted to the cytoplasm the capacity to utilise a substance already at hand It appears, meanwhile, that genes "give character" to the cytoplasm, or "condition" it, while at the same time they supply substances with which it may, during the course of evolution, acquire the ability to react

READING WITHOUT TEARS

Viscount **Gort** said recently that the main feature of modern war was its boredom Occasional intense action is interrupted by large stretches of inactivity, under conditions foreign to any real form of civilised life The National Book Council has just issued a *catalogue of books for the Services*,[1] clearly with the conviction that many a man will wish to find comfort and relaxation in the reading of books In the "Art of Reading," Quiller Couch tells of a friend "who, being in doubt with what picture to decorate the chimney-piece in his library, cast away choice, and wrote up two Greek words ΨΥΧΗΣ ΙΑΤΡΕΙΟΝ, that is, the hospital—the healing place—of the soul" This blue print for such a hospital is an excellent and comprehensive piece of work, it comprises all departments, from general and reference books, philosophy, religion science technical and classical reading, to modern fiction and thrillers The enjoyment of particular books is such a personal thing that it would be idle to try to assess its virtues or sins of commission and omission A striking feature of the pamphlet is its unconscious revelation of our tolerance, Karl Marx's "Capital" is recommended equally with Barnes's "Fascism" and Adolf Hitler's "Mein Kampf, and it is not thought dangerous even to suggest the reading of Aldous Huxley's "Ends and Means," or Gregg's "The Power of Non-Violence" Among the classics, it is surprising to find only one volume of Anthony Trollope, who like Jane Austen is surely an author particularly suitable for escape into a steadier quieter world P G Wodehouse has the largest score of recommendations, while John Buchan Hugh Walpole Ian Hay (who writes a preface to the catalogue), Edgar Wallace and Sapper' also do well It was said that one of the features of the Spanish War was the attempt at popular education in the Republican trenches, if men in the services get through even an appreciable fraction of the [illegible] recommended books, Britain will emerge from the war as a far more educated nation

---

[1] Catalogue of Books for the Services. Selected by a Committee appointed by the Incorporated Society of Authors and the National Book Council 1939 The National Book Council 3d

We are asked by the Medical Research Council to point out that the pamphlet Blood Transfusion Outfits is not a publication in the ordinary sense and has not been placed on sale It is merely a memorandum of instructions relating to the particular forms of apparatus for taking and giving blood which have been supplied to the four emergency blood transfusion depots in the home counties and to various hospitals in the London sectors, and has been printed for distribution to blood transfusion officers

---

[2] Discussion introduced by [illegible] *Proc R Soc Med* 1938 31 811, see *Lancet* 1938 1 436

ANNOTATIONS

BLOOD SUBSTITUTES

ALTHOUGH complete arrangements have been made for the storage of blood for emergency transfusion purposes, it would be valuable to have some substitute available which would withstand storage without deterioration for longer periods than whole blood. In cases of shock unaccompanied by much hæmorrhage—that is, in patients who show a high or rising hæmoglobin value—the transfusion fluid of choice is plasma. On another page Dr. Knott and Dr. Koerner mention the advantages of this material and refer, as was pointed out in an annotation on Oct. 14, to the fact that large quantities of group O are now available as the supernatant plasma from stored blood which has become too old for use. The only disadvantage of group O plasma is that it will agglutinate the cells of the three other groups, sometimes in high dilution. The experiments of Knott and Koerner indicate, as they mention in their conclusions, that the plasma should be tested against the recipient's cells before being injected. Another most unusual blood substitute is described in this issue by Mr. O'Shaughnessy, Dr. Mansell and Dr. Slome This is a solution of hæmoglobin in Ringer's solution. If properly freed from stromata it is relatively non-toxic and possesses the double advantage of carrying oxygen and maintaining the blood osmotic-pressure. It is also easy to store for long periods They give four case-records to illustrate the effects of a 5 per cent solution. As this is equivalent to a hæmoglobin value on Haldane's scale of about 36 per cent. it is not a perfect substitute for whole blood in cases of hæmorrhage. Further, its effects are only transient. It would, however, be interesting to know whether a combination of the two materials, hæmoglobin and plasma, both of which will keep reasonably well, and both of which are available in large quantities, might not be a better substitute than either substance separately.

AGE OF PARENT AND SURVIVAL OF OFFSPRING

FERTILITY in females, it is well known, declines steeply with advancing age There is some evidence that it also declines in males after the age of 25–29 These are quantitative changes, and it would be interesting to know whether there are qualitative changes too—is the survival power of the offspring affected by the ages of the parents? The difficulty is to obtain a measure of vitality that is not also affected by environmental factors For instance, Yerushalmy,[1] analysing the statistics of over 82,000 births in New York State in 1936, found that the neonatal mortality-rates were generally high for young and for old fathers and low for fathers aged 25–34, the age of the mother being kept constant. To take an example, for mothers aged 20–24 the numbers of deaths in the first month of life were thirty-one per thousand live births when the father's age was also 20–24, twenty-five when he was aged 25–29, and thirty when he was 35 or over. This may imply, as Yerushalmy suggested, that age has some effect on the reproductive vitality of fathers, but it is also possible that married couples, both aged 20–24, differ in their social characteristics from couples in which the mother is 20–24 and the father 25–29 Social environment will certainly affect the survival power of the offspring and may obscure the issue It is, however, probable that social environment has less effect upon the incidence of stillbirths than upon infant mortality. Using the figures of 1931–35 for the U.S birth registration area, Yerushalmy has, therefore, calculated the stillbirth-rates recorded for parents of different ages.[2] He finds that the age of each parent is also independently correlated with this rate, relatively high figures are again apparent for young and old parents and low rates for the intermediate ages The relationship is more distinct for young fathers than for young mothers, while in the old ages it is more pronounced for the mothers It exists for infants of both sexes, and there seems to be a similar association between the age of parents and the incidence of premature births These figures, therefore, give some support to his case for qualitative as well as quantitative changes in fertility in association with changes in the ages of the parents.

TREATMENT OF BUCCAL LEUCOPLAKIA WITH ŒSTROGENS

THE value of œstrogenic treatment in senile vaginitis and leucoplakia of the vulva and vagina is well recognised by gynæcologists. In a recent paper two American clinicians[3] state that comparable benefits may be obtained by treating buccal leucoplakia with œstrogens. Thirty-eight patients were treated by them in this way after other methods used for adequate periods had failed. The methods which failed included abstinence from tobacco, proper dental hygiene and the treatment of syphilis if present Œstrogenic treatment consisted in some cases of giving 10,000 rat units of œstradiol benzoate in 1 c cm. of sesame oil by injection on alternate days for a week, together with the oral administration of tablets of alpha-œstradiol in daily doses varying from 0·17 to 1·0 mg. In other cases oral administration of alpha œstradiol in the same doses was used alone, the treatment being continued for periods varying from 90 to 120 days The tabulated results are as follows:—

	Number treated	Cured	Improved	Not improved
Women .	25	11	11	3
Men	13	5	4	4

Improvement often appeared about one week after starting treatment by injection, and in four to six weeks when oral treatment alone was employed. In two men typical mastitis developed and regressed after the cessation of treatment The authors suggest that buccal leucoplakia and similar lesions are associated with a deficiency or a disturbed metabolism of the sex-hormones in both women and men.

SINUSITIS IN CHILDREN

NASAL sinusitis is not so uncommon in children as is generally supposed. The acute fulminating form with abscess formation is rare; the onset is usually insidious and the symptoms somewhat vague, being merely those of nasal obstruction and catarrh, so that the disease may readily be overlooked The usual mistake is to ascribe the symptoms to enlarged tonsils and adenoids, and it is often only after their removal has failed to cure the catarrh that the presence of sinusitis is suspected The principal features of the disease in children are well exemplified by Birdsall[4] in an account of 80 patients treated at Paddington Green Children's Hospital Only one of these cases was acute, and the average duration of symptoms when first seen was two and a half years The commonest symptoms, in order of frequency, were nasal obstruction, cough and frequent colds, pain was relatively infrequent

---

[1] Yerushalmy, J, *Amer J Hyg* 1938, 28, 244; *Lancet* 1938, 2, 1009.

[2] Human Biology, 1939, 11, 342.

[3] Nathanson, I. T, and Weisberger, D B, *New Engl J. Med* 1939, 221, 556

[4] Birdsall, S. E., *J Laryngol Otol* September, 1939, p 549

Half of the children with nasal obstruction had previously had their tonsils and adenoids removed In all, 33 of the children had undergone tonsillectomy without benefit, indeed, the symptoms were often attributed by the parents to this operation, though they had probably existed before This does not support the view sometimes held that the course of a child's sinusitis may be favourably influenced by removal of *tonsils and adenoids It is, on the contrary, an* unfortunate error to perform this operation for symptoms due in fact to sinusitis The diagnosis is largely inferential, transillumination is helpful when one antrum is affected, but radiographic examination is the most valuable means of diagnosis Radiography, indeed, may be considered essential, though it was carried out in only 37 of Birdsall's 80 cases In 35 of these 37 it showed the antra as the predominantly affected sinuses, in 22, other sinuses were also involved, but in no case was infection confined to the frontal or sphenoidal sinuses. Birdsall believes that recent sinusitis in children is, as a rule, readily cured by such simple measures as the application of ephedrine in saline solution and the removal of secretion by an alkaline nasal lotion Presumably he has not encountered acute otitis as a complication of nasal syringing Among his 80 patients 21 did not continue attendance, of the 59 remaining, 34 were cured by ephedrine replacements and drops, and 13 by these methods plus antral lavage Operation was performed in 9 cases, and 2 by the Caldwell Luc method, Birdsall considers this much the easier method in children and he thinks it involves no risk to the germs *of the teeth if the opening is made immediately below* the infraorbital foramen

BILE PIGMENTS IN CHOLECYSTITIS

DUODENAL drainage has provided a means of diagnosis in gall bladder disease which, in good hands, gives information of high value Careful microscopical study of the bile so withdrawn is of great importance, bacteriological examination and observation of the volume and rate of flow may also help Chemical studies of the concentration of bilirubin and urobilin have given interesting though sometimes conflicting results Royer[1] has recently recorded further investigations which have led to conclusions of both physiological and clinical significance In 25 normal subjects he confirmed that the concentration of bilirubin in gall bladder bile is 2 to 12 times higher than in liver bile, due to absorption of water in the gall bladder Urobilin, on the other hand, is increased much less, and this is judged to be because this pigment is itself absorbed by the gall bladder in considerable amounts These results were confirmed by animal experiments Between 3 and 10 per cent. of the bilirubin introduced into dogs gall bladders was absorbed, with urobilin however, the absorption was approximately 50 per cent

Royer reports the results of analyses of the bile pigments following biliary drainage in 70 patients suffering from cholecystitis, with and without calculi In contrast with normal subjects, about half these patients showed a concentration of urobilin higher than that of bilirubin This suggested that urobilin was being formed locally in the gall-bladder from bilirubin It is well known that the change from bilirubin to urobilin is almost always caused by bacteria, hence the results probably indicate active biliary infection with cholecystitis This view was confirmed by experiments on dogs, in which known proportions of the two pigments were introduced into the gall bladder together with a small quantity of material from the calculum to cause infection The urobilin increased, while the bilirubin fell Such conclusions suggest that analysis of the bile pigments obtained by biliary drainage is a valuable method of investigation

FAMILY DIETS IN THE WEST RIDING

"As the application of new medical and scientific knowledge is one of the main functions of the public health services it is also clearly their function to ascertain the facts about a matter of such fundamental importance to health as food consumption "

So writes Dr T N V Potts, county medical officer for the West Riding of Yorkshire, in his preface to a report which has put them into practice[1] During 1935 investigators visited daily for a week the houses of 205 families in the West Riding and made exact studies of the amounts of different foods consumed Families who cooperated in the survey comprised 27 working class families in rural areas, 162 in urban areas, and 16 middle class families from Ilkley, included for purposes of comparison They had a relatively high proportion of young children Mr A Bradford Hill, D Sc, has analysed the figures obtained and has also compared the diets of these Yorkshire families with their estimated requirements as based upon the reports of the technical commission of the League of Nations[2] By these standards the average supply of calories in the diet of all the families was adequate, but in the working-class families a greater proportion of them was derived from carbohydrates than in the higher income group from Ilkley In the working class group just under half of the total protein was of animal origin, while among the better off it rose to two thirds Less than half the amount of calcium suggested to be necessary by the League commission was consumed, while the amount of phosphorus was adequate only in the higher income group, the average intake for all the other families being only 63 per cent of the standard The consumption of iron was, on the whole, sufficient

The average diet of the rural families was slightly superior to that of the urban families in protein, fat, carbohydrates and calories, and, in contrast to M'Gonigle's experience in Stockton-on Tees, the families living on new housing estates were slightly but consistently better fed than their former neighbours The unemployed families showed a greater deficiency in calcium and phosphorus than the employed, and their diets were also lacking in iron and protein Deficiencies in the diet tended to increase as the number of children in the family increased The better off families ate significantly more protein, fat and minerals

The consumption per head of cereals sugar, and potatoes did not vary appreciably with the total amount of money spent on food, but the higher income groups spent more than the lower on fats and dairy produce, fruit and vegetables fish and meat. Almost all the family diets included some fresh milk but even

---

[1] Royer, M *Arch intern Med* September, 1939 p 445

[1] Report on a Study of the Diets of 205 Families in the West Riding of Yorkshire 1939

[2] *Bull Hlth Org L o N* 193 7 461

ANNOTATIONS

BLOOD SUBSTITUTES

ALTHOUGH complete arrangements have been made for the storage of blood for emergency transfusion purposes, it would be valuable to have some substitute available which would withstand storage without deterioration for longer periods than whole blood. In cases of shock unaccompanied by much hæmorrhage—that is, in patients who show a high or rising hæmoglobin value—the transfusion fluid of choice is plasma On another page Dr. Knott and Dr Koerner mention the advantages of this material and refer, as was pointed out in an annotation on Oct 14, to the fact that large quantities of group O are now available as the supernatant plasma from stored blood which has become too old for use. The only disadvantage of group O plasma is that it will agglutinate the cells of the three other groups, sometimes in high dilution. The experiments of Knott and Koerner indicate, as they mention in their conclusions, that the plasma should be tested against the recipient's cells before being injected. Another most unusual blood substitute is described in this issue by Mr. O'Shaughnessy, Dr Mansell and Dr. Slome This is a solution of hæmoglobin in Ringer's solution. If properly freed from stromata it is relatively non-toxic and possesses the double advantage of carrying oxygen and maintaining the blood osmotic-pressure. It is also easy to store for long periods They give four case-records to illustrate the effects of a 5 per cent solution. As this is equivalent to a hæmoglobin value on Haldane's scale of about 36 per cent it is not a perfect substitute for whole blood in cases of hæmorrhage. Further, its effects are only transient. It would, however, be interesting to know whether a combination of the two materials, hæmoglobin and plasma, both of which will keep reasonably well, and both of which are available in large quantities, might not be a better substitute than either substance separately.

AGE OF PARENT AND SURVIVAL OF OFFSPRING

FERTILITY in females, it is well known, declines steeply with advancing age. There is some evidence that it also declines in males after the age of 25–29. These are quantitative changes, and it would be interesting to know whether there are qualitative changes too—is the survival power of the offspring affected by the ages of the parents? The difficulty is to obtain a measure of vitality that is not also affected by environmental factors For instance, Yerushalmy,[1] analysing the statistics of over 82,000 births in New York State in 1936, found that the neonatal mortality-rates were generally high for young and for old fathers and low for fathers aged 25–34, the age of the mother being kept constant. To take an example, for mothers aged 20–24 the numbers of deaths in the first month of life were thirty-one per thousand live births when the father's age was also 20–24, twenty-five when he was aged 25–29, and thirty when he was 35 or over. This may imply, as Yerushalmy suggested, that age has some effect on the reproductive vitality of fathers, but it is also possible that married couples, both aged 20–24, differ in their social characteristics from couples in which the mother is 20–24 and the father 25–29. Social environment will certainly affect the survival power of the offspring and may obscure the issue. It is, however, probable that social environment has less effect upon the incidence of stillbirths than upon infant mortality. Using the figures of 1931–35 for the U.S. birth registration area, Yerushalmy has, therefore, calculated the stillbirth-rates recorded for parents of different ages.[2] He finds that the age of each parent is also independently correlated with this rate, relatively high figures are again apparent for young and old parents and low rates for the intermediate ages. The relationship is more distinct for young fathers than for young mothers, while in the old ages it is more pronounced for the mothers. It exists for infants of both sexes, and there seems to be a similar association between the age of parents and the incidence of premature births. These figures, therefore, give some support to his case for qualitative as well as quantitative changes in fertility in association with changes in the ages of the parents

TREATMENT OF BUCCAL LEUCOPLAKIA WITH ŒSTROGENS

THE value of œstrogenic treatment in senile vaginitis and leucoplakia of the vulva and vagina is well recognised by gynæcologists In a recent paper two American clinicians[3] state that comparable benefits may be obtained by treating buccal leucoplakia with œstrogens Thirty-eight patients were treated by them in this way after other methods used for adequate periods had failed The methods which failed included abstinence from tobacco, proper dental hygiene and the treatment of syphilis if present Œstrogenic treatment consisted in some cases of giving 10,000 rat units of œstradiol benzoate in 1 c cm. of sesame oil by injection on alternate days for a week, together with the oral administration of tablets of alpha-œstradiol in daily doses varying from 0·17 to 1·0 mg. In other cases oral administration of alpha-œstradiol in the same doses was used alone, the treatment being continued for periods varying from 90 to 120 days The tabulated results are as follows.—

	Number treated	Cured	Improved	Not improved
Women ..	25	11	11	3
Men .. .	13	5	4	4

Improvement often appeared about one week after starting treatment by injection, and in four to six weeks when oral treatment alone was employed. In two men typical mastitis developed and regressed after the cessation of treatment. The authors suggest that buccal leucoplakia and similar lesions are associated with a deficiency or a disturbed metabolism of the sex-hormones in both women and men.

SINUSITIS IN CHILDREN

NASAL sinusitis is not so uncommon in children as is generally supposed. The acute fulminating form with abscess formation is rare; the onset is usually insidious and the symptoms somewhat vague, being merely those of nasal obstruction and catarrh, so that the disease may readily be overlooked. The usual mistake is to ascribe the symptoms to enlarged tonsils and adenoids, and it is often only after their removal has failed to cure the catarrh that the presence of sinusitis is suspected The principal features of the disease in children are well exemplified by Birdsall[4] in an account of 80 patients treated at Paddington Green Children's Hospital Only one of these cases was acute, and the average duration of symptoms when first seen was two and a half years The commonest symptoms, in order of frequency, were nasal obstruction, cough and frequent colds, pain was relatively infrequent

---

[1] Yerushalmy, J , *Amer J Hyg* 1938, 28, 244 , *Lancet* 1938, 2, 1009.

[2] Human Biology, 1939, 11, 342

[3] Nathanson, I T., and Weisberger, D B , *New Engl J. Med* 1939, 221, 556

[4] Birdsall, S E , *J Laryngol Otol* September, 1939, p 549

Half of the children with nasal obstruction had previously had their tonsils and adenoids removed In all, 33 of the children had undergone tonsillectomy without benefit, indeed, the symptoms were often attributed by the parents to this operation, though they had probably existed before This does not support the view sometimes held that the course of a child's sinusitis may be favourably influenced by removal of tonsils and adenoids It is, on the contrary, an unfortunate error to perform this operation for symptoms due in fact to sinusitis The diagnosis is largely inferential, transillumination is helpful when one antrum is affected, but radiographic examination is the most valuable means of diagnosis Radiography, indeed, may be considered essential, though it was carried out in only 37 of Birdsall's 80 cases In 35 of these 37 it showed the antra as the predominantly affected sinuses, in 22, other sinuses were also involved, but in no case was infection confined to the frontal or sphenoidal sinuses Birdsall believes that recent sinusitis in children is, as a rule, readily cured by such simple measures as the application of ephedrine in saline solution and the removal of secretion by an alkaline nasal lotion Presumably he has not encountered acute otitis as a complication of nasal syringing Among his 80 patients 21 did not continue attendance, of the 59 remaining, 34 were cured by ephedrine replacements and drops, and 13 by these methods plus antral lavage Operation was performed in 9 cases, and 2 by the Caldwell Luc method, Birdsall considers this much the easier method in children and he thinks it involves no risk to the germs of the teeth if the opening is made immediately below the infraorbital foramen

BILE PIGMENTS IN CHOLECYSTITIS

DUODENAL drainage has provided a means of diagnosis in gall bladder disease which, in good hands, gives information of high value Careful microscopical study of the bile so withdrawn is of great importance, bacteriological examination and observation of the volume and rate of flow may also help Chemical studies of the concentration of bilirubin and urobilin have given interesting though sometimes conflicting results Royer[1] has recently recorded further investigations which have led to conclusions of both physiological and clinical significance In 25 normal subjects he confirmed that the concentration of bilirubin in gall bladder bile is 2 to 12 times higher than in liver bile, due to absorption of water in the gall bladder Urobilin on the other hand, is increased much less, and this is judged to be because this pigment is itself absorbed by the gall bladder in considerable amounts These results were confirmed by animal experiments Between 3 and 10 per cent of the bilirubin introduced into dogs' gall-bladders was absorbed, with urobilin, however, the absorption was approximately 50 per cent

Royer reports the results of analyses of the bile pigments following biliary drainage in 70 patients suffering from cholecystitis, with and without calculi In contrast with normal subjects about half these patients showed a concentration of urobilin higher than that of bilirubin This suggested that urobilin was being formed locally in the gall-bladder from bilirubin It is well known that the change from bilirubin to urobilin is almost always caused by bacteria, hence the results probably indicate active biliary infection with cholecystitis This view was confirmed by experiments on dogs, in which known proportions of the two pigments were introduced into the gall-bladder together with a small quantity of material from the calculus to cause infection The urobilin increased, while the bilirubin fell Such conclusions suggest that analysis of the bile pigments obtained by biliary drainage is a valuable method of investigation

FAMILY DIETS IN THE WEST RIDING

"As the application of new medical and scientific knowledge is one of the main functions of the public health services it is also clearly their function to ascertain the facts about a matter of such fundamental importance to health as food consumption "

So writes Dr T N V Potts, county medical officer for the West Riding of Yorkshire, in his preface to a report which has put them into practice[1] During 1935 investigators visited daily for a week the houses of 205 families in the West Riding and made exact studies of the amounts of different foods consumed Families who cooperated in the survey comprised 27 working class families in rural areas, 162 in urban areas, and 16 middle-class families from Ilkley, included for purposes of comparison They had a relatively high proportion of young children Mr A Bradford Hill, D Sc, has analysed the figures obtained and has also compared the diets of these Yorkshire families with their estimated requirements as based upon the reports of the technical commission of the League of Nations[2] By these standards the average supply of calories in the diet of all the families was adequate, but in the working class families a greater proportion of them was derived from carbohydrates than in the higher income group from Ilkley In the working class group just under half of the total protein was of animal origin, while among the better off it rose to two thirds. Less than half the amount of calcium suggested to be necessary by the League commission was consumed, while the amount of phosphorus was adequate only in the higher income group, the average intake for all the other families being only 63 per cent of the standard The consumption of iron was, on the whole, sufficient

The average diet of the rural families was slightly superior to that of the urban families in protein, fat carbohydrates and calories, and in contrast to M'Gonigle's experience in Stockton-on-Tees the families living on new housing estates were slightly but consistently better fed than their former neighbours The unemployed families showed a greater deficiency in calcium and phosphorus than the employed, and their diets were also lacking in iron and protein Deficiencies in the diet tended to increase as the number of children in the family increased The better off families ate significantly more protein fat and minerals

The consumption per head of cereals sugar, and potatoes did not vary appreciably with the total amount of money spent on food, but the higher income groups spent more than the lower on fats and dairy produce fruit and vegetables fish and meat Almost all the family diets included some fresh milk, but even

---

[1] Royer M *Arch intern Med* September 1939 p 415

[1] Report on a study of the Diets of 2[illegible] West Riding of Yorkshire 1939

[2] [illegible]

ANNOTATIONS

BLOOD SUBSTITUTES

ALTHOUGH complete arrangements have been made for the storage of blood for emergency transfusion purposes, it would be valuable to have some substitute available which would withstand storage without deterioration for longer periods than whole blood. In cases of shock unaccompanied by much hæmorrhage—that is, in patients who show a high or rising hæmoglobin value—the transfusion fluid of choice is plasma On another page Dr. Knott and Dr. Koerner mention the advantages of this material and refer, as was pointed out in an annotation on Oct. 14, to the fact that large quantities of group O are now available as the supernatant plasma from stored blood which has become too old for use The only disadvantage of group O plasma is that it will agglutinate the cells of the three other groups, sometimes in high dilution. The experiments of Knott and Koerner indicate, as they mention in their conclusions, that the plasma should be tested against the recipient's cells before being injected. Another most unusual blood substitute is described in this issue by Mr. O'Shaughnessy, Dr. Mansell and Dr. Slome This is a solution of hæmoglobin in Ringer's solution If properly freed from stromata it is relatively non-toxic and possesses the double advantage of carrying oxygen and maintaining the blood osmotic-pressure. It is also easy to store for long periods They give four case-records to illustrate the effects of a 5 per cent. solution. As this is equivalent to a hæmoglobin value on Haldane's scale of about 36 per cent it is not a perfect substitute for whole blood in cases of hæmorrhage. Further, its effects are only transient. It would, however, be interesting to know whether a combination of the two materials, hæmoglobin and plasma, both of which will keep reasonably well, and both of which are available in large quantities, might not be a better substitute than either substance separately.

AGE OF PARENT AND SURVIVAL OF OFFSPRING

FERTILITY in females, it is well known, declines steeply with advancing age. There is some evidence that it also declines in males after the age of 25–29. These are quantitative changes, and it would be interesting to know whether there are qualitative changes too—is the survival power of the offspring affected by the ages of the parents? The difficulty is to obtain a measure of vitality that is not also affected by environmental factors For instance, Yerushalmy,[1] analysing the statistics of over 82,000 births in New York State in 1936, found that the neonatal mortality-rates were generally high for young and for old fathers and low for fathers aged 25–34, the age of the mother being kept constant To take an example, for mothers aged 20–24 the numbers of deaths in the first month of life were thirty-one per thousand live births when the father's age was also 20–24, twenty-five when he was aged 25–29, and thirty when he was 35 or over. This may imply, as Yerushalmy suggested, that age has some effect on the reproductive vitality of fathers, but it is also possible that married couples, both aged 20–24, differ in their social characteristics from couples in which the mother is 20–24 and the father 25–29. Social environment will certainly affect the survival power of the offspring and may obscure the issue It is, however, probable that social environment has less effect upon the incidence of stillbirths than upon infant mortality. Using the figures of 1931–35 for the U.S. birth registration area, Yerushalmy has, therefore, calculated the stillbirth-rates recorded for parents of different ages[2] He finds that the age of each parent is also independently correlated with this rate, relatively high figures are again apparent for young and old parents and low rates for the intermediate ages. The relationship is more distinct for young fathers than for young mothers, while in the old ages it is more pronounced for the mothers. It exists for infants of both sexes, and there seems to be a similar association between the age of parents and the incidence of premature births. These figures, therefore, give some support to his case for qualitative as well as quantitative changes in fertility in association with changes in the ages of the parents.

TREATMENT OF BUCCAL LEUCOPLAKIA WITH ŒSTROGENS

THE value of œstrogenic treatment in senile vaginitis and leucoplakia of the vulva and vagina is well recognised by gynæcologists. In a recent paper two American clinicians[3] state that comparable benefits may be obtained by treating buccal leucoplakia with œstrogens. Thirty-eight patients were treated by them in this way after other methods used for adequate periods had failed The methods which failed included abstinence from tobacco, proper dental hygiene and the treatment of syphilis if present Œstrogenic treatment consisted in some cases of giving 10,000 rat units of œstradiol benzoate in 1 c.cm. of sesame oil by injection on alternate days for a week, together with the oral administration of tablets of alpha-œstradiol in daily doses varying from 0 17 to 1 0 mg. In other cases oral administration of alpha-œstradiol in the same doses was used alone, the treatment being continued for periods varying from 90 to 120 days The tabulated results are as follows:—

	Number treated	Cured	Improved	Not improved
Women .	25	11	11	3
Men ..	13	5	4	4

Improvement often appeared about one week after starting treatment by injection, and in four to six weeks when oral treatment alone was employed. In two men typical mastitis developed and regressed after the cessation of treatment The authors suggest that buccal leucoplakia and similar lesions are associated with a deficiency or a disturbed metabolism of the sex-hormones in both women and men

SINUSITIS IN CHILDREN

NASAL sinusitis is not so uncommon in children as is generally supposed The acute fulminating form with abscess formation is rare; the onset is usually insidious and the symptoms somewhat vague, being merely those of nasal obstruction and catarrh, so that the disease may readily be overlooked. The usual mistake is to ascribe the symptoms to enlarged tonsils and adenoids, and it is often only after their removal has failed to cure the catarrh that the presence of sinusitis is suspected The principal features of the disease in children are well exemplified by Birdsall[4] in an account of 80 patients treated at Paddington Green Children's Hospital. Only one of these cases was acute, and the average duration of symptoms when first seen was two and a half years. The commonest symptoms, in order of frequency, were nasal obstruction, cough and frequent colds; pain was relatively infrequent.

---

[1] Yerushalmy, J, *Amer. J Hyg* 1938, 28, 244, *Lancet* 1938, 2, 1009

[2] Human Biology, 1939, 11, 342

[3] Nathanson I T, and Weisberger, D B, *New Engl. J. Med* 1939 221, 556

[4] Birdsall, S. E, *J Laryngol Otol* September, 1939, p 549

Half of the children with nasal obstruction had previously had their tonsils and adenoids removed. In all, 33 of the children had undergone tonsillectomy without benefit; indeed, the symptoms were often attributed by the parents to this operation, though they had probably existed before. This does not support the view sometimes held that the course of a child's sinusitis may be favourably influenced by removal of tonsils and adenoids. It is, on the contrary, an unfortunate error to perform this operation for symptoms due in fact to sinusitis. The diagnosis is largely inferential; transillumination is helpful when one antrum is affected, but radiographic examination is the most valuable means of diagnosis. Radiography, indeed, may be considered essential, though it was carried out in only 37 of Birdsall's 80 cases. In 35 of these 37 it showed the antra as the predominantly affected sinuses; in 22, other sinuses were also involved, but in no case was infection confined to the frontal or sphenoidal sinuses. Birdsall believes that recent sinusitis in children is, as a rule, readily cured by such simple measures as the application of ephedrine in saline solution and the removal of secretion by an alkaline nasal lotion. Presumably he has not encountered acute otitis as a complication of nasal syringing. Among his 80 patients 21 did not continue attendance; of the 59 remaining, 34 were cured by ephedrine replacements and drops, and 13 by these methods plus antral lavage. Operation was performed in 9 cases, and 2 by the Caldwell-Luc method. Birdsall considers this much the easier method in children and he thinks it involves no risk to the germs of the teeth if the opening is made immediately below the infraorbital foramen.

BILE PIGMENTS IN CHOLECYSTITIS

DUODENAL drainage has provided a means of diagnosis in gall-bladder disease which, in good hands, gives information of high value. Careful microscopical study of the bile so withdrawn is of great importance; bacteriological examination and observation of the volume and rate of flow may also help. Chemical studies of the concentration of bilirubin and urobilin have given interesting though sometimes conflicting results. Royer[1] has recently recorded further investigations which have led to conclusions of both physiological and clinical significance. In 25 normal subjects he confirmed that the concentration of bilirubin in gall-bladder bile is 2 to 12 times higher than in liver bile, due to absorption of water in the gall-bladder. Urobilin, on the other hand, is increased much less, and this is judged to be because this pigment is itself absorbed by the gall-bladder in considerable amounts. These results were confirmed by animal experiments. Between 3 and 10 per cent. of the bilirubin introduced into dogs' gall-bladders was absorbed; with urobilin, however, the absorption was approximately 50 per cent.

Royer reports the results of analyses of the bile pigments following biliary drainage in 70 patients suffering from cholecystitis, with and without calculi. In contrast with normal subjects, about half these patients showed a concentration of urobilin higher than that of bilirubin. This suggested that urobilin was being formed locally in the gall-bladder from bilirubin. It is well known that the change from bilirubin to urobilin is almost always caused by bacteria; hence the results probably indicate active biliary infection with cholecystitis. This view was confirmed by experiments on dogs, in which known proportions of the two pigments were introduced into the gall-bladder together with a small quantity of material from the calculum to cause infection. The urobilin increased, while the bilirubin fell. Such conclusions suggest that analysis of the bile pigments obtained by biliary drainage is a valuable method of investigation.

FAMILY DIETS IN THE WEST RIDING

"As the application of new medical and scientific knowledge is one of the main functions of the public health services it is also clearly their function to ascertain the facts about a matter of such fundamental importance to health as food consumption."

So writes Dr. T. N. V. Potts, county medical officer for the West Riding of Yorkshire, in his preface to a report which has put them into practice.[1] During 1935 investigators visited daily for a week the houses of 205 families in the West Riding and made exact studies of the amounts of different foods consumed. Families who cooperated in the survey comprised 27 working-class families in rural areas, 162 in urban areas, and 16 middle-class families from Ilkley, included for purposes of comparison. They had a relatively high proportion of young children. Mr. A. Bradford Hill, D.Sc., has analysed the figures obtained and has also compared the diets of these Yorkshire families with their estimated requirements as based upon the reports of the technical commission of the League of Nations.[2] By these standards the average supply of calories in the diet of all the families was adequate, but in the working-class families a greater proportion of them was derived from carbohydrates than in the higher income group from Ilkley. In the working-class group just under half of the total protein was of animal origin, while among the better off it rose to two-thirds. Less than half the amount of calcium suggested to be necessary by the League commission was consumed, while the amount of phosphorus was adequate only in the higher income group, the average intake for all the other families being only 63 per cent. of the standard. The consumption of iron was, on the whole, sufficient.

The average diet of the rural families was slightly superior to that of the urban families in protein, fat, carbohydrates and calories, and, in contrast to M'Gonigle's experience in Stockton-on-Tees, the families living on new housing estates were slightly but consistently better fed than their former neighbours. The unemployed families showed a greater deficiency in calcium and phosphorus than the employed, and their diets were also lacking in iron and protein. Deficiencies in the diet tended to increase as the number of children in the family increased. The better off families ate significantly more protein, fat and minerals.

The consumption per head of cereals, sugar, and potatoes did not vary appreciably with the total amount of money spent on food, but the higher income groups spent more than the lower on fats and dairy produce, fruit and vegetables, fish and meat. Almost all the family diets included some fresh milk, but even in rural areas nearly half of the poorer families used condensed milk as well. The average daily consumption of fresh milk was only a third of a pint per head, and though milk taken in schools was considered as part of the family diet the consumption fell as the number of children in the family rose. The survey will interest those who are now working out our rations, for it shows the relation, at various levels of expenditure, between the scientific optimum and the actual diet of the working class.

---

[1] Royer, M. *Arch. intern. Med.* September, 1939, p. 445.

[1] Report on a Study of the Diets of 205 Families in the West Riding of Yorkshire, 1939.

[2] *Bull. Hlth Org. L.o.N.* 1938, 7, 461.

DIPHTHERIA ANTITOXIN

IN his presidential address to the section of pathology of the Royal Academy of Medicine in Ireland, Dr. R. A. Q. O'Meara, while strongly supporting the use of diphtheria antitoxin, contrasted the results given by it in the hands of Martin and Chaillon in Paris in 1894 (a reduction in fatality from 30 to 12 per cent.), and in comparable groups of cases today most actively treated (fatality-rates of 11 to 17 per cent.). All depends, of course, on that little word "comparable," but O'Meara believes that it is justifiable to conclude that not only has there been no improvement in the treatment of the toxæmia of diphtheria but that modern antitoxin, unit for unit, is less potent than that originally employed. Too much attention has been paid, he suggests, to purification, to the avoidance of reactions and to the isolation of fractions for that purpose, and too little to studies of the clinical efficacy of antitoxin. The laboratory and the bedside worker have not worked sufficiently hand in hand. Further, in his view the work of Pasteur and the pioneers suggested that to get solid immunity it is necessary to use something very close to the whole organism and the modern tendency towards fractions may well lead to immunising methods being discredited. His plea for clinical trials is clearly highly relevant in this respect and should not be difficult to answer. It was supported by Prof. Bigger, who, though satisfied that antitoxin has definitely reduced the fatality-rate of both gravis and mitis infections, believed that the treatment has not improved to the extent which one would have expected after reading the results obtained by laboratories. On the other hand, it may be, as was suggested by certain speakers, that the antitoxin is no less potent than heretofore, but that the virulence of the organism has increased in certain areas. For instance, Dr. C. J. McSweeney, quoting observations from the Cork Street Fever Hospital, reported that the commercial antitoxin now used seems to check the spread of the membrane in gravis cases but has little, if any, effect on the undefined toxic factor which is responsible for the faucial œdema—"the hall-mark of toxic diphtheria" is the "bull neck." To combat such forms, reactions, he thought, have to be faced.

JOHN HOWARD

"I AM the plodder, who goes about to collect materials for men of genius to make use of." Thus John Howard[1] summarised nearly twenty years of arduous travel in England and abroad, investigating the state of the prisons of his time. Howard was born at Clapton in 1726. His early years were spent at Cardington near Bedford and later he attended, with no great distinction, a dissenting academy in London. He was interested in science, particularly meteorology, and was later elected a fellow of the Royal Society. After his father's death in 1742 he was left with ample means and spent much of his time travelling. He was twice happily married and finally settled on his estate at Cardington. In private life, Howard appears to have been something of a benevolent despot. He treated his tenants well, but they were expected to conform with his strict standards of conduct and religious observance. Likewise his second wife, fortunately a simple, pious woman, agreed that should any difference of opinion arise between them his should always be the final decision. He was a vegetarian and total abstainer and withstood great physical hardships with fortitude. During his visits to prisons he was often exposed to the infection of plague and gaol fever, but he took few precautions beyond abstaining from deep breathing, carrying a vial of vinegar, and trusting in Providence. When Howard was almost 50 he became high sheriff for Bedfordshire and his interest in the prisons began. He noticed that some prisoners could not pay the usual fee demanded by the gaoler and tipstaff and so, although they were acquitted at the assizes, they were taken back to prison. This led him to ride into several neighbouring counties to see if the same conditions existed there. He found the state of the prisons, where men and women, innocent and hardened, were herded together, appalling. Drinking and gambling, encouraged by the gaoler who supplied the liquor, were all too common and the prisons were hardly ever inspected by the authorities. In order to find some remedy for conditions at home, Howard travelled abroad and examined the prisons of many other countries. He also inspected bridewells and investigated the transportation system. He himself accomplished little in the way of prison reform, but he collected and published facts which aroused public opinion and paved the way for the work of such reformers as Bentham and Elizabeth Fry, and his interest in the prevention of gaol fever and plague helped in the development of the public health movement. While studying conditions in a military hospital in Russia Howard contracted camp fever and he died in January, 1790. But like another famous reformer his soul goes marching on, inspiring the Howard League for Penal Reform.

MEASLES AND WHOOPING-COUGH TO BE NOTIFIED

IN America and some other countries the notification of measles and whooping-cough has been in force for years, and it is from these sources that our knowledge of the behaviour of these important endemic diseases is mainly derived. The practice of notification in this country is based on the belief, widely held in the last century, that the spread of infectious disease could be controlled by sanitary measures; notification was accordingly limited to diseases regarded as due to insanitary conditions. Today the control of epidemic disease is looked at differently and the object of notification has shifted from what the sanitary inspector can do with broom and candle to what the medical profession can do by applying our knowledge of immunology. Measles and whooping-cough, both of them frequent causes of avoidable death and severe physical impairments, offer great scope for attack by immunological means; but such progress can only be haphazard unless the distribution and epidemiological features of these diseases are known. Opposition to an extended list of notifiable diseases seems to have been due for the most part to a misunderstanding of the objects of notification and the use to which it is put. Strictly speaking, infectious diseases are notified through the medical officer of health to the local sanitary authority and the certificate (except in the case of tuberculosis) is an open document, in practice however notification is a private communication from a practitioner to the medical officer and is treated as confidential. All that is made public is the number of the various diseases notified. The action, if any, taken on the receipt of a notification is left to the discretion of the medical officer, it is more and more his custom to consult with the notifying practitioner before acting. As a local and temporary measure measles and whooping cough have long been notifiable in various parts of the country. In now extending notification to the whole country the Minister of Health emphasises its ephemeral character. Many besides epidemiologists will have the faith to believe that it has come to stay.

---

[1] John Howard. Hospital and Prison Reformer. A bibliography. By Leona Baumgartner, M.D. Baltimore: The Johns Hopkins Press. 1939. Pp 79. $1.

TUBERCULOSIS IN WALES

In Wales the campaign against consumption has had a divided leadership. The King Edward VII Welsh National Memorial Association has been responsible for the diagnosis and treatment of the patient and his relatives, the preventive work—apart from personal prophylaxis, such as sanitation, housing, and aftercare—has been the care of the local authorities. Obviously the clinical work of a tuberculosis service however expert will be of little avail unless the spread of infection is prevented with equal vigour. It was the suspicion that the contribution made by the local authorities was lagging behind that made by the association that prompted the request to the Minister of Health in September, 1937, to inquire into the working of the scheme as a *whole*, when it was found that the defects (and they were many) lay at the door of the local authorities. The story is fully and fairly set out by the association's principal medical officer in the 27th annual report which is before us. In his opinion the dual control has allowed the local authorities to make the easy assumption that *all* aspects of the anti-tuberculosis campaign come within the scope of the association. Contributory factors are the poverty of the principality as a whole and the disparity between the population and the resources of some of the authorities. The remedy lies in the pooling of administrative areas, aided by a grant from the central government, and in adequate staffing by whole time health officers. The report contains much useful information: for instance, the number of new cases examined has gone up 9 per cent. since 1937 and is now nearly double what it was in 1928, the fact that 81 per cent. of patients who died of tubercle in 1938 had been referred to the association's officers is welcome evidence of cooperation with the body of general practitioners. Study of the report leads the reader to reflect that whatever deficiencies may exist in the public health service of the principality the work of the memorial association at least is sound.

RADIATION FOR CERVICAL CARCINOMA

It is now generally accepted that intracavitary radium combined with X-ray therapy is the method of choice in the treatment of cervical uterine cancer. Two recent papers give a valuable survey of technique, results and complications. Meigs and Jaffe[1] of Boston report a group of 70 cases, and A. Grossman[2] discusses his findings at the Michael Reese Hospital, Chicago. In the Boston Hospital the course of treatment begins with X rays. Four pelvic portals centred on the cervix are used, each field receiving a total of 1500 to 2000 r. measured in air—given in daily exposures of 300 to 400 r. to alternating fields so that each field is treated once in 4 days. Treatment is given at 200 kV. (peak voltage), 5 20 mA., filtration 0.5 copper and 1 aluminium, and focal skin distance 50 cm. At the end of approximately 18 days, radon is inserted into the cervical canal, in a small tube filtered with 1 mm. platinum for a dose of 1500 millicurie hours delivered in 5 hours. Four days later the treatment is repeated. Recently an attempt has been made to add to the dose by implanting needles of 2-10 mg. content into extensions of the tumour to the vaginal wall. Of 70 cases treated, 24 lived 5 years (34.4 per cent.). The European figures chosen for comparison are those of the Fondation Curie, Paris (46.8 per cent.) and of the Marie Curie Hospital London (41.2 per cent.). All are relative, not absolute, cure-rates. The authors think that they failed to spread their dose far enough round the cervix. Yet, in spite of their low dosage, fibrosis of the uterus was a common cause of hydronephrosis, uræmia and death. The ureters were not sectioned and it is possible that constriction was due to recurrence in tissues altered by radiation.

Grossman describes a new technique for external radiation with the 4-gramme radium pack. Fields 8 by 10 c.cm. are used, and the radium is kept at 10 cm. from the skin. About 3000 mg. hours are administered daily to each of the two fields, a total daily dose of 6000 mg. hours. This continues to a total of 200,000 mg. hours. If the primary growth regresses satisfactorily, external treatment is interrupted to give intracavitary radium treatment. This is applied according to the technique of Regaud of the Fondation Curie, and the total dose is 7000 mg. hours in a total of 116 hours. The intracavitary dosage here is quite high and can be roughly estimated to be over 7000 r. (radium) on parametrium immediately adjacent to the cervix. It would be helpful to know the estimated dose on parametrium from the radium pack and also the results of this method of treatment.

CHRISTMAS AND THE DOCTOR

This year Christmas will find most of us less well off than we were a year ago. With the income-tax steadily going up and our incomes coming down, we look around for new ways of making both ends meet. Calls on our charity are naturally subjected to searching scrutiny before being answered—or we stifle better thoughts and drop them quickly and surreptitiously into the wastepaper basket. But there is one appeal with which our readers are familiar which must not fall on deaf ears. Each year for as long as most of us can remember, Sir Thomas Barlow has asked us to help less fortunate members of our profession and their relatives, and his words have met with a generous response. Once again in our correspondence column he repeats his now familiar words but with a variation. If we are hard up those for whom he appeals are worse hit still. For them a very small drop in income or a very small rise in price means all too often lack of the necessities not to mention the simplest luxuries. We feel sure that he will not appeal to our readers in vain.

The next session of the General Medical Council will open at 10 A.M. on Tuesday, Nov. 28, under the presidency of Sir Norman Walker.

Sir John Pollock, M.B., has been elected rector of the University of Edinburgh.

---

[1] Meigs, J. V., and Jaffe, H. L., *Surg. Gynec. Obstet.* 1939, 68, 257.

[2] Grossman, A., *Ibid*, 1939, 68, 373.

SPECIAL ARTICLES

VENEREAL DISEASE

ITS PREVENTION AND TREATMENT ON ACTIVE SERVICE

By E. T Burke, D.S O., M B Glasg.
DIRECTOR OF I C C (WHITECHAPEL) CLINIC

I have recently returned from Ruritania, where I was afforded facilities for studying the measures which have been taken to deal with venereal diseases among the troops. The war between the kingdom of Ruritania and the republic of Totalitaria has now been in existence for just over two months. The Ruritanian expeditionary force of some 300,000 men is manning part of the frontier of her ally Gaul, *facing the Totalitarian defences known as the Wotan Line* Ruritania, profiting by the experience of Great Britain during the war of 1914–18 regarding venereal disease, has instituted certain measures with the objects of both reducing the incidence of V.D among the troops and minimising the loss of man-power caused by these diseases.

The situation which developed in the British army during the 1914–18 war—namely, that during these five years there were some 400,000 cases of V.D. among British troops—was fully appreciated by the Ruritanian government. They realised that such a state of affairs must have been a potent factor in increasing the amount of V D among the British civil population, and also that, from the military point of view, such a figure represents a tremendous loss of efficiency and fighting-power, an army of venereally infected men equivalent to 20 infantry divisions. In order to prevent a similar situation arising in their own army, the Ruritanian government brought into force various measures which were evolved *after a careful study of those adopted* by Great Britain

The British practice was that *when a soldier on* active service was found to be suffering from V D. he was evacuated from his unit to a special V D hospital at the base, where he remained until cured or judged to be non-infectious. *It is a matter of* common knowledge that a large number of men on home-leave, rather than again face the hazards of the front line, set themselves deliberately to acquire V.D., usually gonorrhœa. In large towns, certain prostitutes who knew themselves to be suffering from V.D. specialised in accosting soldiers and impressing the men with the fact that intercourse would result in acquiring a disease for which the infected soldier would be sent for treatment to the safety of the base. There were not a few instances where a man on leave, knowing of a male friend suffering from gonorrhœa, would inoculate his urethra by means of a match-stick with pus from his friend's urethral discharge. In other cases men, in order to avoid active service, freely indulged in promiscuity in the hope that they would acquire V.D. Many soldiers reported sick with V.D. while still in Great Britain, where they were admitted to hospital. By various means—causing a relapse, becoming reinfected and the like—they contrived to remain on the home front for the rest of the war. V.D was, in short, regarded as the lesser of two evils.

The Ruritanian military authorities decided to institute exactly the reverse procedure—i.e , to treat all soldiers suffering from V D. in the field. In order to carry this out a V.D branch of the Ruritanian Army Medical Corps (R A M.C) was created An officer was appointed with the rank of colonel to be director of the V.D. branch. The R A M.C applied to the Ministry of Hygiene for a venereologist of wide experience and high standing to be lent to the Army for the duration of the war. The Ministry selected the director of one of their large clinics and this officer—*Colonel B L Ank*—was appointed. He has direct access to the director-general of the R A.M C, and his duties are to organise the V D. branch, to select the officers for it and to administer and be responsible for the whole scheme.

The basic principle of the scheme is that, except for unusual cases such as those complicated by the disease itself or by untoward effects of therapy, all patients suffering from early syphilis—i.e , up to the end of the secondary phase—acute anterior gonorrhœa, or soft sore, can and should be treated in the field and not be evacuated to a special hospital at the base

During the 1914–18 war, the commanding officer of a British field ambulance on active service successfully treated a large number of men suffering from syphilis, gonorrhœa or soft sore Thoroughly effective treatment was carried out at that time—23 years ago—without any difficulty Being aware of this, the director of the V D branch realised that, with the *modern more efficient remedial agents and greatly* improved technique, fully adequate treatment is much more easily applied in the field now than it was then

The idea upon which the Ruritanian scheme is based is that when troops know that treatment for V.D. takes place in the field and not at the base there will be much less incentive for men deliberately to acquire these diseases in order to reach a safe area

The scheme provides that

(*a*) Any soldier in a divisional, corps, or army area developing V.D. *remains in that area for treatment.*

(*b*) Any soldier on L. of C. developing V.D., if he belongs to L of C troops, remains on L. of C. for treatment ; or, if he belongs to a divisional, corps or army area, he returns to that area for treatment.

(*c*) Any soldier at the base developing V D., if he belongs to a unit on L of C or in a divisional, corps or army area, is returned for treatment to the area in which his unit is situated.

(*d*) Any soldier belonging to a base unit developing V.D. is treated at the base till non-infectious and is *then transferred up the line to complete his treatment*

(*e*) Any soldier on leave in Ruritania from overseas who develops V.D. remains in Ruritania until he is non-infectious and is then returned overseas to complete his treatment with his unit.

(*f*) Any soldier serving in Ruritania who develops V D. remains in Ruritania until he is non-infectious and then is transferred overseas as a reinforcement there to complete his treatment.

To carry out these principles, the following arrangements have been made :

(*a*) In each corps area (there are 3 divisions in a Ruritanian corps), attached to a hygiene company or a casualty clearing station, there is a V.D. section of the R A.M C , consisting of an officer with V.D. experience, an N.C.O. and 6 V.D orderlies.

(*b*) In various *areas along L of C.* similar V.D. sections are stationed and attached to C.C.S 's or *other medical units*

(*c*) At the base is a large V.D. hospital for the treatment of cases complicated by the disease or by the untoward effect of therapy, which have been sent down from the V.D sections further up the line.

This hospital also treats uncomplicated cases arising locally, rendering them non-infectious prior to sending them up the line to complete their cure

TREATMENT OF SYPHILIS

The concurrent intermittent scheme is adopted The arsphenamine preparations used are either (1) Stabilarsan which is already in solution in the ampoule and is thus drawn directly into the syringe without further preparation and without risk of oxidation or contamination, or (2) any of the "914" powder preparations approved by the Ministry of Hygiene The solvent for these latter preparations consists of a solution of sodium thiosulphate so ampouled that each contains 0 6 g of the thiosulphate The arsphenamine injections are given thrice weekly (say on Monday, Wednesday and Friday) in doses of 0 25, 0 30 and 0 45 g, making a total of 1 0 g in each 7-day period The bismuthal used is a lipo soluble one, either (1) Neo Cardyl or (2) Stabismol These are given intramuscularly twice weekly (say on Tuesday and Saturday), each dose containing not less than 0 1 g of elemental bismuth

For all degrees of syphilis up to the end of the secondary phase, the schedule given in table I is adopted

TABLE I

Week	Unit course		Week	
	Arsphen (g)	Bismuth (g)		
1	1 0	0 2	11 to 15	Patient returns to duty
2	1 0	0 2	16 to 25	Repeat unit course
3	1 0	0 2	26 to 30	Patient returns to duty
4	1 0	0 2	31 to 40	Repeat unit-course
5	1 0	0 2	41 to 45	Patient returns to duty
6	1 0	0 2	46 to 55	Repeat unit course
7	1 0	0 2		
8	1 0	0 2		
9	—	0 2	Serological tests every 3 months for 2 years	
10	—	0 2		

The schedule covers a period of 55 weeks During this time the man is absent from his unit for four periods of 10 weeks each, when he is present as an ambulant patient in the V D section in order to receive his injections Being ambulant and being treated in the area where his unit is stationed, such a man would, in an emergency, be at once sent to rejoin his comrades in the line without exposing them to any danger of infection Between treatment periods there are three rest intervals, each of 5 weeks, during which the patient returns to full duty with his unit

The schedule is designed not merely to render the patient non infectious but to *cure* him It represents full modern treatment and when carried through—even with certain modification—it yields a cure rate of 100 per cent It is of vital importance, particularly from the civil public health angle, that these men should really be cured and should not return to civil life, either on leave or at the termination of the war, capable of conveying infection to their marital partners and future children It is only too probable that the short schedule of treatment adopted in the British army during the 1914–18 war while rendering the man fit to return to duty did not produce cure in some cases with the result that the disease was conveyed to women and children No man suffering from syphilis is allowed to proceed on leave until the scheduled treatment is completed and his serological reactions are negative

TREATMENT OF GONORRHŒA

The routine adopted for gonorrhœa is set out in table II

TABLE II

Week	M & B 693 (g daily)	Posterior irrigation daily
1	3	Pot permang 1 8000
2	2	

If progress satisfactory—i e, no urethral discharge and urine clear—stop treatment and in week 3 carry out daily observation for 3 days and then begin tests for cure

If at the end of week 2 there is still some urethral discharge and/or if the urine is not yet clear continue treatment for week 2 for a further 7 days

Tests for cure —If no evidence of vesiculo prostatic infection

Week	Procedure
4	Vesiculo prostatic culture and prostatic bead
5	
6	
7	Urethroscopy, sounds rectal examination
8	Gon complement fixation test
9	Nil Wassermann and Kahn tests
10	Instillation $AgNO_3$ (posterior) Slides
11	Nil
12	Nil
13	Vesiculo prostatic culture Prostatic bead C F T

The treatment of gonorrhœa by M & B 693 has shown that in all but very rare instances complete cure is achieved in 3 weeks Testing for cure is important and is carried on over a period of 10 weeks During this time, however, the patient returns to full duty but attends at the V D section once weekly for examination

TREATMENT OF SOFT SORE

The routine adopted is shown in table III Cases uncomplicated by suppurating bubo are in the vast majority of instances, capable of resuming full duty at the end of the second week

TABLE III

Week	M & B 693 (g daily)
1	3
2	2

Beginning on the 1st day Dmelcos curative vaccine is given intravenously on alternate days The first dose is 1 0 c cm and each succeeding dose is increased by 0 5 c cm up to a maximum of 3 0 c cm. Six injections in all are given the last two being 3 0 c cm each

Locally Mild antiseptic dressings

Each V D section is equipped for making a diagnosis microscopically Serological and cultural examinations are carried out by the laboratory at the base V D hospital Specimens for culture are taken at a C C S, which possesses an incubator, and these are investigated in a field laboratory

PREVENTION

The following orders have been issued regarding prophylaxis by the director of the V D branch

1 Medical officers in charge of troops will give talks to all ranks upon this subject at intervals of three months

2 All drafts proceeding from Ruritania overseas shall before embarkation, receive a leaflet upon the subject

3 In talks and in leaflets, the first point emphasised is that the only certain way of avoiding V D is by abstaining from extra marital sexual intercourse

(During the war of 1914–18 the British found that there were many instances of men acquiring V.D while on leave as the result of intercourse with their wives. These women had been infected by some man during their husbands' absence)

4. No matter what may be the social standing of the woman involved, all extra-marital sexual intercourse is fraught with danger, and the only safe course is to regard any woman who consents to intercourse outside marriage as being capable of conveying V.D.

5. Any soldier who indulges in extra-marital sexual intercourse *must report* within 12 hours to a medical unit or to a medical inspection-room for preventive treatment.

6. Soldiers applying for prophylaxis are free to do so at *any* medical unit or medical inspection-room. There is no compulsion for a man to receive preventive treatment only at his own unit

7. When preventive treatment is given, the soldier's number, name and rank must not be recorded. The *only entry in the preventive treatment register* is the serial number of the applicant and the name of his unit. If the cooperation of the troops is to be obtained, it is essential that the anonymity of those applying for prophylaxis should be preserved. The register is ruled as under:

Serial No	Unit	Date and time of exposure	Date and time of prophylaxis	No of hours' delay
137	7th Bn. Blankshire Rgt.	April 1, 1940 (10 P M)	April 2, 1940 9 A M	11
138	Nth A A Battery	April 1, 1940 (7.30 P M.)	April 2, 1940 (10 A M)	14½

8. After preventive treatment has been given, the soldier is instructed to report sick immediately upon the appearance of any genital sore or urethral discharge When he does so, he must tell the medical officer to whom he reports, when and where he received preventive treatment. The soldier will be sent to a V.D. section for diagnosis, and, in the event of venereal disease being discovered, the officer i/c of the V.D section will check the *man's statement by getting into touch* with the unit where the preventive treatment is alleged to have been carried out.

9 All troops are warned that after extra-marital sexual intercourse it is compulsory for them to apply for preventive treatment. If V.D. develops after such treatment has been given no punishment will follow. If, on the other hand, a man develops V.D and admits that he has not applied for preventive treatment, or alleges that he did apply for such treatment but on investigation is found not to have done so, a punishment will be awarded such as forfeiture of pay. Concealment of V.D. is to be severely punished by, for example, stoppage of pay and cancellation of leave for the time during which he is under treatment and observation.

10. Preventive treatment consists of the following measures carried out under the superintendence of a trained orderly

(1) Patient urinates.

(2) Wash whole of external genitals thoroughly with hot soap-and-water for 5 min., during which time a thick lather should be obtained. This lather is to be thoroughly massaged into the penis, scrotum, pubis, perineum and adjacent parts of thighs. The prepuce must be retracted and its inner surface and the frenal region thoroughly cleansed. The whole area is then thoroughly dried.

(3) Irrigate anterior urethra with a 1 : 8000 solution of potassium permanganate.

(4) Instil into anterior urethra 1.0 c cm. of a 10 per cent. solution of Argyrol This is retained in the canal by the patient holding the meatus firmly closed between his forefinger and thumb.

(5) At 1-min. intervals a little of the injection is allowed to escape by the patient momentarily relaxing the pressure on the meatus.

(6) At the end of 5 min. the remainder of the injection is allowed to escape naturally—i e., without applying massage or stripping to the urethra.

(7) The small quantity which remains in the urethra is retained there by applying a collodion seal to the meatus The patient removes this seal when he wishes to micturate, which act should be deferred for 4 hours.

(8) The patient then massages thoroughly into all parts of the penis, scrotum, pubis, perineum and *adjacent parts of the thighs from ¼ to 1 drachm* of the following ointment:

℞ Hydrarg. subchlor 30.0 g.
Thymol 2.5 g.
Paraffin, dur. 1.0 g.
Paraffin, mol alb
Adeps lan hyd. āā q s ad 100.0 g

To avoid soiling the clothing, the genitals are enclosed in a paper covering The areas to which the ointment has been applied are not to be washed for 3 days

Experience of the results obtained by these measures shows their very high value in the prevention of gonorrhœa, soft sore and genital syphilis. Several cases have been *encountered, however,* in which although these measures were properly carried out syphilis subsequently developed, the primary chancre being an extra-genital one situated usually on the lip or finger To prevent the extra-genital, especially the common labial, chancre recourse must be had to systemic prophylaxis Preventive treatment by means of the oral ingestion of Acetarsol has been most successfully carried out at a large civil clinic upon a great number of patients applying for prophylaxis. Acetarsol is put up in tablets of 0.259 g (gr. 4) each. For prophylactic purposes, the man is given fifteen tablets and he takes three per *day for 5 successive days.* The three tablets should be crushed up, dissolved in a cupful of water, and taken half-an-hour before breakfast.

Every soldier receiving prophylactic treatment is advised to have a serological test done after 3 and 6 months have elapsed

SUMMARY

1 A suggested scheme for the prevention and treatment of V D. among troops is presented for simplicity as if it were already adopted by a mythical Ruritanian army The basis of the scheme is that it is more advantageous to treat V D cases in the field than in a base hospital; and that fully adequate modern treatment can be carried out in the area occupied by the army corps &c to which the patient's unit belongs—the only cases evacuated to the base being those developing some complication.

2. Rapid and complete cure and not merely non-infectiousness is the goal to be aimed at.

3 The scheme includes a special V.D branch of the medical service, directed by an officer who is a venereologist of high standing, with rank not lower than colonel Attached to each army corps or similar formation there is a special V.D. section consisting of an officer, an N C O and 6 orderlies specially trained in V D work.

4 A man on leave at home or overseas who develops V D is returned, as soon as he becomes non-infectious, to complete his treatment and tests for cure in the area in which his unit is serving.

5. The schedules of treatment for syphilis, gonorrhœa and soft sore described are designed to give fully adequate treatment resulting in permanent cure with the minimum absence from duty, the patient returning at once to his unit if an emergency arises.

6. Measures for the prevention of V.D are set out in detail

HEALTH IN INDUSTRY

IN the period June 1938-39 reviewed in the nineteenth annual report[1] of the Industrial Health Research Board, the board's investigators have, as usual, been busy over a wide range of subjects While subjective evidence favours the correction of small errors of refraction, particularly low degrees of hypermetropia, Mr Graeme Talbot, F R C S, and Mr H C Weston have not been able to detect any significant improvement in the work performance of office and factory workers fitted with the necessary spectacles Dr P M T Kerridge has measured the hearing acuity of weavers and beetlers in Lancashire, and finds that in these noisy occupations only a moderate degree of deafness is produced even after 20-30 years of work Continuing their inquiries into the physiological problems of heating and ventilation, Drs. T. Bedford and C G Warner have been investigating the degree of air-change which takes place in rooms under ordinary conditions of occupation Their observations range from old cottages to modern blocks of workmen's flats and should prove of considerable interest The effects of incentives on human performance are being studied by workers both in the factory and the laboratory, and the important problems of "speeding-up" are not being overlooked As well as continuing his work with Mr E G Chambers on the accident-prone, Mr E Farmer is concerned with the vocational fitness for business of those who have had a university education, a question on which, in the absence of statistics, opinions no doubt differ Much work is also being carried out on the vocational wishes and aptitudes of school children and their vocational guidance, while industrial misfits unfortunately continue to provide plenty of material for study in the psychological field

In the conclusion to their last annual report the board referred to the difficulty of making widely *known such results of research work as are capable of* application to practical needs in industry They still believe that their reports are not being sufficiently read by those to whom they are primarily addressed, and they have therefore decided to summarise them as far as possible in popular language at the time of issue, and to seek further means of distributing them to the industries largely concerned This is clearly a wise step with which war conditions should not be allowed to interfere

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

ROYAL FACULTY OF PHYSICIANS AND SURGEONS

Dr J Souttar McKendrick has been elected president of the Royal Faculty of Physicians and Surgeons of Glasgow in succession to Dr John Henderson Dr McKendrick is a native of Edinburgh, but while he was still young he came to live in Glasgow with his father Prof John G McKendrick, who held the chair of physiology in Glasgow University McKendrick was lecturer in practical physiology under his father and for eight years also lectured in medicine with the late Sir Thomas McCall Anderson For almost forty years Dr McKendrick has been connected with the Western Infirmary and for thirteen years he has been a manager His professional life has been spent largely as a practitioner in the west end of Glasgow, but he has also acted on numerous hospital administrative boards

HOSPITAL SUPPLIES

An organisation which goes by the name of the hospital supply section of the W V S is doing useful work in Edinburgh At the headquarters 55 to 65 ladies put out an average of 3500 dressings per day On Oct 17, the day after the first air-raid in the Firth of Forth, in response to an S O S from one of the first aid posts of the city, 200 yards of gauze were cut and folded ready for use in under 2 hours Within 3 weeks of the outbreak of war, extensive demands were made from the Eastern and Western General hospitals for various surgical supplies—500 surgeons' caps, *600* theatre gowns, *3000* towels of various kinds, and so on These orders have been filled rapidly and it is hoped that soon all first-aid posts will be supplied with their requirements of cut-out garments and other material from the section headquarters

NEW LORD RECTOR OF EDINBURGH

The students of Edinburgh University have elected Sir J Donald Pollock as their new lord rector in succession to Sir Herbert Grierson Sir Donald was rector's assessor during Sir Herbert's term of office He is a graduate in medicine of the university Although the total poll was disappointingly small the size of the majority gave convincing confidence of Sir Donald's popularity with the student body For some years now he has taken great interest in student activities in Edinburgh and has given large sums to various university activities He helped to get the common room at King's Buildings built, and it has been a great success In addition he bought and presented to the university the old Bristo church for use as a small university hall for winter graduations and student activities Sir Donald is a great supporter of the principle of a common union for both men and women and he thinks that all students should automatically become members of such a union on matriculation The slogan used during the election campaign—"Vote for Pollock, the working rector"—gives a good indication of what the students expect from a man who has taken such interest in their affairs

SWEDEN

(FROM OUR OWN CORRESPONDENT)

AIR AMBULANCE SERVICES

The history of air ambulance services since the Swedish Red Cross started them in 1924, according to Surgeon General Fritz Bauer in the society's magazine, is one of mounting expenditure and of aeroplanes which crashed Lives were lost in three accidents in one of which, in the autumn of 1938, all the occupants of the aeroplane—pilot, mechanic patient doctor and nurse—were killed when it crashed in a fog into a mountain There is no suggestion that these disasters should deter the Red Cross and the army from further developing this activity, for the service's achievements more than outweigh its disasters Between June 1924 and May 1939 1431 patients were transported 402,151 km by Red Cross *and army aeroplanes, and a further 109 patients were* carried in private aeroplanes Among these were 218 cases of infectious disease or blood poisoning 480 of acute gastro intestinal disease 92 of acute inflammation of the lungs, 15 of acute mental disease 100 gynaecological or maternity cases, and 322 cases of accident. It says much for the courage and enterprise of pilots confronted by fogs and snow-storms, and the prospect of finding no suitable place in which to alight, that the calls for their services were responded to in over 93 per cent. of all recent calls. The most difficult time of the year for ambulance flights is in the spring and autumn, when ice may interfere with other modes of transport while not reaching the 20 cm thickness needed to bear the weight of an aeroplane It is this consideration which is making constructors keep their ambulance aeroplanes as light as possible

---

[1] H M Stationery Office Pp 31 6d

DENMARK

(FROM AN OCCASIONAL CORRESPONDENT)

RISING TIDE OF HOSPITAL TREATMENT

ONLY a generation or two ago the Dane died in his bed at home. Now, particularly if he lives in Copenhagen, he dies in hospital Apart from such an ultimate event as death, the Dane spends much more of his life between birth and death in hospital than he used to do. To these generalities Dr. Povl Heiberg has recently tried to give statistical precision in a study dating back to 1881 and carried down to 1935 To avoid the inaccuracy of minor fluctuations, he has dealt in five-year periods, the first of which was 1881–85, the last, 1931–35 In the first only 29 per cent of all the deaths in Copenhagen occurred in its hospitals, whereas in the period 1931–35, the percentage was 67. It has been calculated that about 5 per cent. of all the deaths are now due to accidents and suicides, events rare both in the home and in the hospital So, when both violent deaths and hospital deaths are eliminated, the deaths at home account for only about a quarter of the mortality in Copenhagen at the present time

It might have been thought that the hospital fashion was universal, and that whatever the disease a rise in the frequency of hospital treatment for it would be demonstrable. True enough, for such diseases as typhoid, diphtheria, scarlet fever, rheumatic fever, lobar pneumonia and pulmonary tuberculosis, the proportion of cases treated in hospital, and the proportion of deaths from these diseases in hospital has risen enormously; in the case of pulmonary tuberculosis from 28 per cent. in 1896–1900 to 75 per cent in 1931–35 But such a disease as scabies shows a reversed tendency, thanks to the improved efficiency of ambulant treatment. Syphilis and gonorrhœa also are less often treated in hospital than they were at the beginning of this century · indeed, 23 per cent. of all the notified cases of gonorrhœa were given hospital treatment 1906–10, whereas in the five-year period ending 1935, the figure was only 7 per cent

THE FUTURE OF GONORRHŒA

A report, whose cheerful note is substantiated by imposing figures, from the Rudolph Bergh Hospital in Copenhagen, gives the impression that gonorrhœa will shortly be of historical rather than contemporary interest In *Nordisk Medicin* for Sept. 11, Dr. Aage Kristjansen discusses his experiences of Streptamid (sulphanilamide) and M. & B. 693 in several hundred cases of gonorrhœa He began with sulphanilamide in the autumn of 1937, but at the end of 1938 switched over to M. & B 693, which he finds more potent and less liable to cause complications. At the Rudolph Bergh Hospital it has proved capable of curing gonorrhœa rapidly and effectively in about 97 per cent. and this result can be achieved in recent cases of the disease by a week's course of tablets whose administration does not entail resident treatment in hospital. Dr. Kristjansen notes than in 1930 59 per cent. of the 180 beds in the Rudolph Bergh Hospital were required for cases of venereal disease; in 1936, thanks largely to advances in the treatment of syphilis, this proportion was reduced to 42 per cent; in 1938 it fell again to 29 per cent; and when he presented his report to the Danish Medical Society last month only 10 per cent of all the beds of his hospital were being used for venereal disease Evidence in the same sense is to be found in the notifications of new cases of gonorrhœa in Copenhagen. Dr. Kristjansen refers to encouraging experiences with the treatment of soft sore and lymphogranuloma inguinale with this new group of drugs; and he concludes with a prophetic flourish, saying that "with salvarsan, bismuth and suphanilamide, the venereologist of today may with confidence look forward to the time when venereal disease will be defeated as a social scourge, and he will himself be rendered almost superfluous"

DENMARK'S DIETETIC DILEMMAS

Something between Cassandra and Joan of Arc, Dr. Johanne Christiansen continues to warn her fellow-countrymen of the evils of their dietetic ways Readers of her article in THE LANCET in February of last year, and the correspondence that followed, will recall that she has raised her standard against the teaching of Dr Hindhede, whose advocacy of vegetarianism made a deep impression on Danish larders a generation ago. Indeed, she has lately produced in Germany a study entitled "Mein Kampf gegen Hindhede."

Dr. Christiansen's crusade is against margarine, bacon, sugar and flour, and on behalf of milk, eggs, cheese, meat, fish, fruit and vegetables The picture she paints of the margarine-fed, obese and constipated Dane may be striking but is certainly not pleasing to the eye Obesity, she says, is the diagnosis of about 10 per cent of all the patients in certain Danish hospitals The misleading—this in reference to Dr. Hindhede—teaching that animal food is harmful has scared the Danes into shunning milk and meat, and distending themselves with fats, flour and sugar. As for hospital diets in the past, Dr Christiansen holds their vitamin-deficiency up to scorn She would like to see the farinaceous slops of the discredited and discreditable past giving place to milk and meat soups, the latter as an excellent vehicle for the vegetables she values so highly

NEW ZEALAND

(FROM OUR OWN CORRESPONDENT)

THE OUTBREAK OF WAR

"Certain bankrupt islands in the South Pacific" having declared war on Germany, as one of the German broadcasts in English puts it, most medical men in New Zealand have had their routine disturbed to a greater or lesser extent. The civil Organisation for National Security had previously been created, and medical boards were ready in all centres to carry out the examination of recruits for the volunteer force This work has mostly been done Colonel F T. Bowerbank of Wellington has been gazetted D.G M S with Lieut.-Colonel Ivan Wilson as his assistant at army headquarters The three A D M S s in the northern, central and southern commands are Lieut.-Colonel H. S Kenrick, Lieut-Colonel W. H. B Bull and Lieut-Colonel A. C McKillop. Of the division which the Dominion is planning to train, the first brigade group is already in camp, and the second likely to go in November Apart from the medical officers attached to the units, the field ambulance of the first brigade group is commanded by Lieut-Colonel J H Will and Major A A Tennent Proposals for the safeguarding of the practices and appointments of men engaging in military service are under consideration by the B M A The government has not yet indicated whether M O s on service will be given a professional allowance in addition to their pay of rank, as was done in 1014–18 Uncertainty on this point is believed to be responsible for some delay in the volunteering of medical men

ROYAL AUSTRALASIAN COLLEGE OF SURGEONS

This is the only official organisation specifically of surgeons in Australia and New Zealand, and the dominion section is the authority for New Zealand Meetings of the fellows in the four centres take place from time to time for clinical and operation sessions, and there is an annual two-day meeting of all N Z fellows held in the centres by rotation This year it was held in Dunedin and on Aug 30 there was a discussion on gastro-jejunal ulceration Sir Louis Barnett, emeritus professor of surgery in the University of Otago, who has resigned from the chairmanship of the N Z section, had been chairman since the inauguration of the college (1928), and had for the last year been its president He will continue in charge of the college's hydatid registry, which now includes records of 1400 cases and is a valuable source of material for clinical study His own contributions to the literature of hydatid disease, and his efforts on behalf of its prevention, still continue Mr F Gordon Bell, professor of surgery at Otago, was elected dominion chairman in succession to Sir Louis Barnett

MATERNITY SERVICES

National Health insurance has receded as an active issue in N Z politics for the present, but in the session of Parliament just concluded an amendment to the Social Security Bill was passed, dealing with maternity services Since the contemporary situation was described in these columns on Aug 12 (p 383) alternative contracts between the Minister and doctors were prepared, provisionally approved by the government, and also approved by a majority of the profession in a secret ballot These proposals have now been embodied in the Act, and will shortly come into force, though certain definitions, and details such as rates of remuneration, remain to be fixed The new proposals briefly substitute a more elastic arrangement for the former contract The doctor is to be paid the statutory fees by the Social Security Department simply on the production of evidence of having attended the case Further improvements are seen in the provision of additional fees for complications such as hyperemesis, eclampsia and hæmorrhage Provision is also made for the payment of anæsthetist and consultant when necessary, and for mileage fees

There is still no sign that the general practitioner part of the national service is to be started Negotiations between hospital boards and their (hitherto) honorary staffs are in progress with a view to payment of these staffs for their part time work in the hospitals

---

THE NEW ENDOCRINOLOGY

Concluding article by Prof E C Dodds F R C P, *director of the Courtauld institute of biochemistry at the Middlesex Hospital, based on lectures delivered at the British Postgraduate Medical School*

VII—THE SUPRARENAL

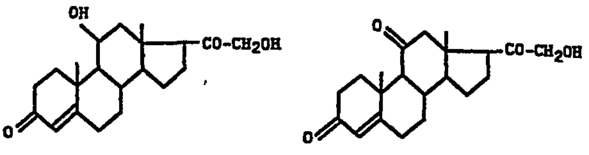
The suprarenal has always presented great interest to the physician, the physiologist and the anatomist It was one of the organs for which the conception of an external duct was abandoned last of all Until a hundred years ago prizes were frequently awarded to anatomists who could demonstrate the duct of the suprarenal, and it is surprising to note how relatively recently awards were made for a successful attempt By the middle of the last century anatomists reluctantly recognised that there was no duct, and the gland was therefore a complete mystery

Its entry into pathology is so well known that very little need be said here It will be remembered that Addison demonstrated the relationship between lesions of the gland and the syndrome that now bears his name and in 1895 Oliver and Schafer demonstrated the pressor effects of extracts of the suprarenal. This was rapidly followed by the isolation of adrenaline, in crystalline form, and finally by the synthesis of this substance Despite these pressor effects, however careful trials demonstrated that it had no action whatsoever on the progress of Addison's disease A long and elaborate series of animal experiments had further demonstrated that complete bilateral adrenalectomy was always followed by the death of the animal and by the year 1910 it was fully realised that the suprarenal tissue is essential to life From the fact that adrenaline will not prolong the lives of bilaterally adrenalectomised animals it follows that the gland must produce another internal secretion On morphological and histochemical grounds the suprarenal gland can be separated into two component parts, the medulla, responsible for the production of adrenaline, and the cortex, responsible presumably for the production of the hormone which is essential to life

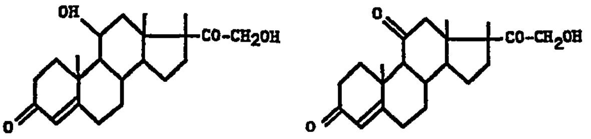
The search for the active principle continued without success until 1931 One of the great difficulties lay in the provision of an adequate method of testing The completely adrenalectomised cat or dog dies within some three or four weeks, and the illness is characterised by great lassitude, muscular weakness and a rise in the non protein nitrogenous constituents of the blood Death occurs with respiratory failure The ability to keep such animals alive would of course form a very good test, yet it can at once be seen that such a reaction could not be used for quantitative assessments, and at the same time it would be impossible to test a large number of substances Various other methods have been employed, such as studying the rapidity of onset of muscular fatigue in adrenalectomised rats This is the method in common use today, and it is known as the Everse de Fremery test

The first successful demonstration that a stable active hormone could be obtained from the suprarenal cortex was made by Swingle and Pfiffner in 1931 Their preparation was obtained by extracting the glands with volatile solvents and precipitating various fractions with lead There is no point in giving the details of this technique since the method is now of historical interest only Their substance was standardised by its power to maintain the life of adrenalectomised cats A great deal of further work was done by a large number of investigators

Fig. 1



A—Corticosterone B—Dehydro-corticosterone



C—17-hydroxy-corticosterone D—17-hydroxy-dehydro-corticosterone

thus Stewart and Rogoff, Hartman and later Kendall obtained extracts of varying degrees of purity and activity. Kendall isolated a series of substances in crystalline form, but these proved for the most part to be inactive. The final clearing-up of the constitution of the hormone is due very largely to T. Reichstein. By extracting very large quantities he was able to show that the active principle was of a steroid nature, and was ketonic in properties. By the use of Girard's reagent, which it will be remembered is capable of application to the isolation of organic ketones, Reichstein was able to prepare a whole series of substances and to determine their constitution. Fig 1 shows the constitution of some of the substances obtained. Compounds A and B are more active than C and D. From a study of the relative activity of the crystalline compounds and the crude tissue, it would appear that there must be substances of a greater activity present in the gland. It seems that a large number of substances capable of maintaining life are produced by the gland.

In view of the extreme difficulty of obtaining adequate quantities of this substance from natural sources, a synthesis has been attempted. As I pointed out in an earlier article, the complete chemical synthesis of the cyclopentenophenanthrene nucleus with its correct spatial orientations has not yet been possible. Reichstein has devised a degradation synthesis from sterols of the same type as that employed for the production of progesterone, androsterone and testosterone. Starting with either cholesterol or stigmasterol, 3-hydroxy-ætio-cholenic acid is produced. This by a series of changes shown in fig 2 can be completed to desoxy-corticosterone. This differs from the naturally occurring corticosterone solely in the fact that it does not contain the hydroxyl group in the 11th position. Biological tests show that this substance is more active than the naturally occurring hormone. Recently the substance has actually been isolated from the gland. Hydrogenation of the double-bond causes the almost complete disappearance of activity, whilst the removal of the hydroxyl group in the 21st position results in the formation of progesterone. This, however, is without action from the cortine point of view.

Another substance isolated from the gland is andrenosterone, with the formula shown in fig 3. This was found to be inactive from the cortine point of view, but is androgenic and is one of the substances excreted in the urine in cases of adrenal tumour.

BIOLOGICAL CONSIDERATION OF THE CORTICAL HORMONE

Even before the isolation of corticosterone and the availability of quantities of desoxy-corticosterone for biological experiments, physiological and pathological considerations of the adrenalectomised animal claimed attention. Some of the most striking observations were made by F. Verzár, who remarked on the similarity of the condition of adrenalectomised animals to that of animals poisoned by iodo-acetic acid. He produced evidence that in both these conditions there was an inhibition of the process of phosphorilation. This affects mainly the carbohydrate metabolism and the metabolism in the absorption of fats. Thus it was shown that in animals poisoned with phosphorus no fat was deposited in the liver if the animal had been previously adrenalectomised or alternatively poisoned with iodo-acetic acid. It is well known that proper absorption of the metabolism of fat cannot take place unless phosphorilation has occurred. Verzár also suggested that the hypoglycæmia in adrenalectomised animals was due to lack of phosphorilation of carbohydrates, also an essential part of their metabolism.

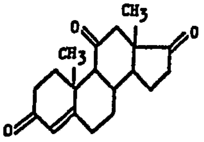


Fig 3—Andrenosterone

This subject has also been studied by C. Jimenez Diaz, who maintains that the cortical hormone has a direct action on the kidney and that the ammonia-forming powers become rapidly diminished in the adrenalectomised animal. At the same time he finds a decrease in the phosphatase activity of the kidney, and links these two factors together. Diminution in the ammonia-forming powers of the kidney leads to acidosis and an increase in the excretion of sodium, and therefore Jimenez-Diaz ascribes the well-known beneficial action of sodium chloride in Addison's

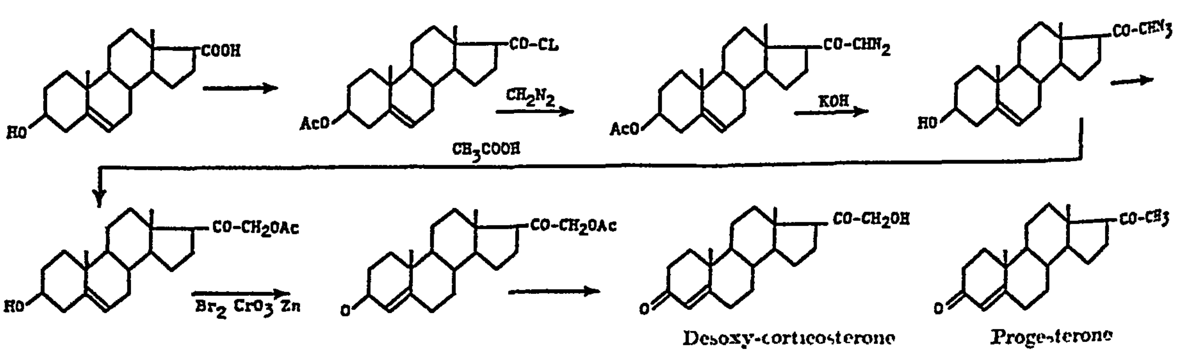


Fig. 2—Degradation from stigmasterol

disease and on the adrenalectomised animal to this mechanism. It will be remembered that the symptoms of Addison's disease may be considerably ameliorated by giving large quantities of sodium chloride by mouth, and the same also applies to the condition of the adrenalectomised animal. Animals adrenalectomised early in life fail to grow, and it has been suggested by Verzár that this is through a lack of phosphorilation of the flavines together with lactoflavine or vitamin B_2.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM RECHAUFFEUR

III

THE last war in the Royal Navy shows up in retrospect in pleasant colours since one forgets those periods of waiting, which seem inevitably to be associated with war. Someone aptly described it as "a long-drawn out period of intense boredom, punctuated by moments of acute fright." A year or two back, one's memories had an air of unreality, but now we are again in a topsy-turvy world. The great difference between the start of the last war and this was, I think, our attitude of mind beforehand. This time we were all prepared for European trouble, whereas in 1914 we were most of us taken unawares in the midst of our peaceful occupations. My own was, I remember, a Yorkshire tennis tournament. In a few days we found ourselves in a new world. I shall certainly never forget my first morning in a light cruiser in the North Sea—two hours spent on deck in a tremendously steep sea, which left one no time to do anything but try and stand upright. Then at lunch time nothing could be induced to stay on the table. However, seas were not always rough, there was the mail when one got into harbour, shore leave from time to time, deck hockey on board, and even occasional cricket matches on shore. And if one had to live cheek by jowl with someone, a better company could not be imagined.

The absence of newspapers at sea was inadequately compensated for by a weird missive, named "Poldhu," after the transmitting station, written out in the wireless cabin. It contained abbreviated accounts of attacks and counter attacks in France or Gallipoli, so similar to each other, that if today's Poldhu failed to turn up, yesterday's was equally interesting and sufficient to check breakfast conversation. At the outset of the war most ships got rid of their inflammable furniture very quickly, but as it was slowly realised that the expected fleet action was going to be postponed indefinitely, it had to be replaced by a new lot.

In a fighting ship a doctor was treated with quite a lot of consideration partly because he was only a "trumpery" surgeon as the ratings translated "temporary" and partly because one came from that queer place the "beach" a sufficient cover for any eccentricity. But whether those four years were spent in hospital ships or fighting ships, and we most of us had experience of both, the sea cast a wonderful pellucid covering over them.

* * *

The character of the executive officers of the Royal Navy is unique. They share with all genuine sailors the simplicity of outlook which comes to those who have to deal with natural elements, for the wind cannot be bluffed and storms are incalculable. These men have a glamour which is all their own especially, I am tempted to think, if they have been through Dartmouth at the start. There is a singleness of spirit, a lack of competitive feeling, an absence of snobbery—moral, social, or intellectual—and a will to companionship (after breakfast) which, being unconscious, has a most exhilarating effect on outsiders. Even routine in wartime could not stale the infinite variety of the N.O. He took as great a delight, apparently, in our strange language as we did in his; to hear a gangway called a ladder or a cabin a room excited his friendly derision. The royal naval officer offers a standard in the psychology of the eminently sane which seems to elude even the elaborate classification of Jung. Extrovert he predominantly is, but he has, too, the sublime detachment of the introvert, and much more besides; if his standard could be extended to all the world, there would be precious little need of introspection.

The naval officer invites coöperation from the outset, whatever his seniority. A colleague of my own got himself into a minor scrape because he was too willing to oblige a vice admiral. An inspection of a battleship was to take place and every rating was in his correct division. But one stoker with a temperature of 103° had perforce to be kept in the sick bay in bed. When the procession of admiral, captain, commander and fleet surgeon arrived to inspect the sick bay, the admiral sympathetically but brusquely inquired of the man what was his trouble. "I got bronchitis, sir," answered the man. "How did he get that?" asked the admiral, turning to my friend the "trumpery" surgeon. My friend, who had no idea of the cause of the illness, helpfully suggested that the man had got a wetting. "And how did you get *that*?" said the admiral. "I never got no wetting, sir," replied the man, to which the unfortunate surgeon, completely taken aback but still hoping to make the inspection a success, could only suggest that the man "had got wet in his bath." The informal conference on the spot exonerated my friend on the plea that he was after all only a stranger from "the beach."

* * *

Occasionally, officiousness invades the medical branch of the Royal Navy just as it does the other services. A good example of this occurred in a hospital ship when a rating was suspected of swinging the lead. He complained of a small varicose vein and was instructed to stand to attention with his trousers lowered around his ankles for inspection of the alleged vein. The fleet surgeon had made up his mind in a few moments that the man needed a "ticking off" and severely asked him how long he had been in the navy. "Six years, sir," was the reply. "Then," said the fleet surgeon majestically, looking him up and down to find a fault, "you have been in the service long enough to have learnt that when speaking to an officer you should have the buttons of your coat done up."

* * *

Seasickness is quite a common enemy of the hardiest naval officer, and I never saw any effort made to treat it Some of us got over it quite easily by the simple expedient of filling the stomach as full as possible with, say, suet pudding and getting up on deck with our faces into the wind With the acquisition of sea-legs, seasickness may disappear.

It was very humiliating when after the war I found myself succumbing to seasickness in quite a small swell crossing the Adriatic on a cruise to Greece We landed at Split on the Dalmatian coast, and were informally taken in tow by a stranger who gave us his name—Count Pawlow. Later in the day he met us again and very hospitably asked us to his house before we went on board. My surprise was considerable to see on the walls photographs of an Oxford college rowing eight, and in the bookshelves Osler's Medicine and Rose and Carless' Surgery They belonged to the Count's son-in-law, who, after being wounded early in the Serbian wars, had been sent to England to complete his education, he then entered the Jugo-Slav army as a medical officer. Later in the evening he came in to join the party and turned out to have been at my own hospital

The Hellenic cruises are well worth consideration by doctors. I went as ship's surgeon, getting the trip free in return for my services I suppose I might have been kept on board for days by some unexpected illness, but actually I was never prevented from going ashore on the many expeditions we made day after day from the small Italian ship which was our floating hotel We went to Knossos in Crete and to all the most famous places in ancient Greece, as well as to three lovely sea towns on the recently liberated Dalmatian coast We made many friends, heard many excellent lectures and after these, usually managed to get some dancing or bridge. I still hope to go again, when the North Sea, not to mention the Mediterranean, has returned to the ways of peace

LETTERS TO THE EDITOR

A CHRISTMAS APPEAL

SIR,—Many members of the profession have most generously supported the appeal made each year for donations towards the Christmas gift fund of the Royal Medical Benevolent Fund. In the years of peace this special work of ours in bringing extra comfort and pleasures on Christmas Day into the homes of old people, directly connected with our profession, has obviously appealed to the hearts and sympathy of many of your readers In this year of war, may I through you, Sir, ask the question—is the Fund to give its usual gift at Christmas, 1939, or are those old people to receive nothing at a time when they may be suffering from greater privations and difficulties?

I am very confident that the reply will be that this is not the year to withhold the gift which means so much happiness and brings such pleasure to many old and infirm people I invite those who can contribute to send donations to the Royal Medical Benevolent Fund, Christmas Gift Account, Wormingford, Essex. Although many members of our profession have been hard hit, yet I have every hope that the response will be a generous one

I am, Sir, yours faithfully,

THOMAS BARLOW,
President

Nov. 13

EVACUATION PROBLEMS

SIR,—The press reports of the debate on evacuation, initiated on Nov. 1 by the Bishop of Winchester have been necessarily condensed, and we doubt whether Viscount Dawson's speech (of which your parliamentary correspondent gave the headings) has received the attention it deserved With your permission, we will refer to and expand some of his arguments

We suppose that few members of our profession rail at the Government because preparations were made to mitigate the horrors of mass murder from the air Householders who have taken out fire and burglary policies do not usually write rude letters to insurance offices because another year has passed without a fire or a burglary. But householders paying heavy premiums do from time to time consider whether their (or their parents') estimates of the worth of family pictures attributed to old masters are likely to be confirmed by an expert valuer. Lord Dawson invited his fellow peers to consider the premiums of our assurance policy against threatened general slaughter. All his arguments deserve study but we shall refer to two only, a psychological and an epidemiological argument.

Much was said in the debate respecting the unwillingness of wives to remain away from their husbands Lord Dawson reminded his hearers of a "fundamental instinct of human nature on which the family life is founded, and that is the homing instinct" We think our psychological colleagues would expand this and tell us that a rupture of the family life of young married people which may be continued for years is a very serious matter. It is a psycho-pathological process which, even if the number of individuals affected is small, may seriously weaken the morale of a community. Infection is at least as important in pyschology as in physiology. Here is a psychological problem

Lord Dawson passed to an epidemiological problem. "We must remember," he said, "that there is a great deal of overcrowding You get an outbreak of severe influenza in one of these overcrowded communities in the reception areas and you have a terrible problem, very easily, right at your very door."

The deaths from accident on the roads in September and October due to blackouts made one item of our insurance premium; one wonders whether droplet infection in cottages, overcrowded vehicles and shelters may not add another item between now and May. It may be that the coincidence in time of the greatest war and the greatest pestilence (that of 1918) since 1348-9 was a pure coincidence; the mortality was not confined to belligerent nations But it may be, as some epidemiologists think, that the crowding together of young people in the trenches and munition factories (not restricted to belligerent nations) had some share in the exaltation of virulence of the virus.

If emotional tension can be maintained, might an enemy be subtle enough to induce (by, for instance, numerically small sacrifices of aircraft and relatively few direct murders), day after day, great congestion in shelters and other places of relative safety, and thus bring about suitable conditions for epidemic explosions?

It may be said truly that these are academic questions (the influenzas of 1918–19 accounted for more than 150,000 deaths in England and Wales alone). The deterioration of morale, even death itself with an unbroken body, are not emotionally so horrible as the thought of burning buildings collapsing upon women and children We would not advocate the diversion of a single medical or technical officer from the effective service of civilian defence But we submit that problems such as these deserve the serious consideration of some professional group which, while not burdened with the responsibility of executive control, has weight with the public

We, as fellows of the Royal College of Physicians, naturally think of the college in that connexion, but in the first place the subject should be considered by the medical profession as a whole Our object has been to call attention to what seem to us very serious problems. We are, Sir, yours faithfully,

E Graham-Little

Nov 13 Major Greenwood

WOMEN AND SPORT

Sir,—Your annotation on Women and Sport makes reference to investigations by a subcommittee (of which I was chairman) appointed by the National Fitness Council, the activities of which are interrupted but not, we hope, terminated at present The details described in your annotation are so accurate that I assume they must have been inspired by some official pronouncement for which I myself am not responsible. Yet although any absolute conclusions are premature, I welcome an opportunity for publicity since nobody can say when a more considered judgment will be possible Your annotator states that the Committee tried to obtain adverse criticism on violent exercise for women and girls, but up to the present without success Taking this *au pied de la lettre,* I can imagine censure from the would be impartial We must admit that in this country there is a deeply rooted traditional opposition to violent exercise for women Such opposition may be on physical, physiological, psychological or merely æsthetic grounds, and contrary evidence has little effect on prejudice On the other hand, the small minority who practise or praise highly competitive sports will have difficulty in believing that they could receive a fair trial and decision I believe we did our best in the circumstances, and if any of us were biased by preconceptions we nevertheless tried to assess judicially all the available evidence

Among details which demanded investigations were dysmenorrhœa—was it aggravated or alleviated by exercise?—fertility, pregnancy, parturition, and sundry gynæcological details On the psychological side, we asked ourselves if athletic competitions tend to produce a virile aggressive type of woman or if it is merely that the virile type is instinctively attracted towards such feats We interviewed women who were prominent in the world of sport as active participants or as holders of official positions—runners, jumpers, oarswomen, swimmers, gymnasts, hockey, lacrosse and lawn tennis players from girlhood into adult life The athletic investigation included the distribution of a questionnaire to a large number of present and past participants and to a smaller number who had married and from whom details about child bearing were obtained Not a single example was forthcoming in which disadvantages of violent exercise were admitted or advanced Many asserted that so far from dysmenorrhœa being made worse, obvious improvement in this symptom occurred There was no suggestion of relative sterility, of troublesome pregnancies or of difficulties in delivery It may be objected that all our subjects were enthusiasts unlikely to give any adverse evidence, but what other subjects could be selected as material for such an inquiry?

I was familiar with Dr Westmann's book "Sport, Physical Training and Womanhood" to which your annotator refers and Dr Westmann was good enough to attend one of our meetings in company with a distinguished English gynæcologist His statements and figures provide a strong prima facie case against violent exercise in his recognition of the "virago type," his instances of shattered health, of menstrual difficulties, of relative sterility, of difficult deliveries, of displacements among female athletes and those who wish to condemn intense competitive sports for girls and young women will find abundant support for their indictment But quite apart from the absolute antithesis of our own results we were not convinced by much of Dr Westmann's thesis

It had been intended to prosecute the subject further with the assistance of two experienced psychologists so some aspects may still be regarded as sub judice The investigation was originally undertaken as a practical study to seek justification for bestowing or withholding financial support for such activities But here for the present it must rest, from both the practical and the academic side

I am, Sir, yours faithfully,

Brook Street W 1 Nov 4 Adolphe Abrahams

GAS GANGRENE IN SPAIN

Sir,—Mr H A Brittain's suggestion (on p 981 of your issue of Nov 4), that the success of the closed method of treating war fractures reported by Dr Trueta can be ascribed to the absence of gas-gangrene infection in Spain, is not supported by the facts either of clinical experience or of geography Cases of gas gangrene occurred with tragic frequency in patients wounded on the Madrid and Aragon fronts during the early period of the war Complete statistics are not available but many references to this infection can be found in the medical journals—e g, *Revista de Sanidad de Guerra* (1938, 11–12), where in a report on blood transfusion in the central zone out of 1871 transfusions 61 were given for gas gangrene English doctors working in Spain saw many cases in base hospitals when problems of evacuation had delayed treatment Transport of the wounded in Thomas's splints without previous complete surgical treatment of the wound was responsible for many patients arriving at the base with developed gas gangrene

In injuries from air-raid bombs the gross destruction of the soft tissues, especially the muscles, and the large proportion of injuries of the lower limbs, with their greater muscle bulk, predisposes to the development of anaerobic infections Reports on the high incidence of gas gangrene from air raid injuries in Spain came to the A R P department of the Home Office during the Spanish war One of the objects of a visit I made to Catalonia in September 1938 was to inquire into this question During that month and in the following December and January I found that gas gangrene had at one time been a frequent complication, particularly when treatment at first aid stations had delayed the proper surgical treatment, but with early complete excision of the wound, removal of bruised tissue and immobilisation in a plaster cast the condition had become rare I saw only two patients both recovering, in the hospitals of Barcelona in September 1938

All the air-raid casualties treated in Barcelona came either from the town itself or from the smaller towns and villages of Catalonia, situated mainly on the coastal plain, a fertile agricultural district with small industrial centres The small incidence of gas-gangrene infection in the cases treated by the closed method by Dr Trueta and his assistants (one in 1077 patients) cannot be due to geographical factors

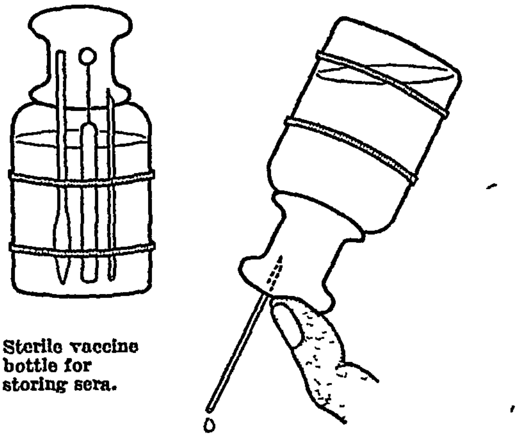
I am, Sir, yours faithfully,

Wimpole Street, W 1 Nov 13 D J Collier

STORAGE AND USE OF GROUPING SERA

SIR,—I expect others have thought of the following technique, but I have not seen it published.

The sera are stored in sterile vaccine bottles which are closed with a rubber cap. The usual practice is to employ white glass for group A, and amber glass for group B serum. Each bottle is accompanied by the *shaft* of a serum needle, conveniently attached by two rubber bands; the shaft may be obtained by breaking off the shoulder, or when quantities are wanted the needle tubing may be purchased and cut up. When a test is to be performed, the needle shaft is removed from under the rubber bands, sterilised in a flame, and allowed to cool, and the pointed end is plunged through the rubber cap for a few millimetres. The bottle is inverted, and gentle pressure is applied with the finger to the rubber cap to eject a drop of serum from the needle shaft. This technique is equally useful whether one or a series of tests are to be performed. At the end of the sitting the needle shaft is removed, washed through with water, and replaced under the rubber bands.



Sterile vaccine bottle for storing sera.

This simple procedure has a number of advantages. With ordinary care the bottles of sera remain uncontaminated for weeks or months. Packing of a complete outfit is reduced to a minimum. The manipulation required is no greater than in the case of sera sealed in glass capillaries, and the laborious process of filling and sealing dozens of capillaries is avoided. Teat pipettes are often used for delivering the sera from the bottles when many tests are to be done, but they are clumsy; it is only too easy to knock over the little bottle when the pipette is in it, and there is always the risk of interchanging the A and B pipettes; the present method removes these difficulties. The wire loop, used for adding the donor's blood to the grouping sera, and the needle for pricking the skin may also be kept under the rubber bands

I am, Sir, yours faithfully,

Emergency Blood Supply Depôt,
Luton, Nov. 4.

G. A. HARRISON.

ARTIFICIAL PNEUMOPERITONEUM

SIR,—The article by Dr. Josephine Barnes under this title in your issue of Nov. 4 interests me greatly. I would have refrained from writing on the subject as my experience of this method of therapy is small, but there are three points suggested by the article which should, I think, be referred to at once.

(1) Should not the pneumoperitoneum have been kept going in the reported case by several more injections?

(2) After my visit to America early this year I came to the conclusion that the best site for the puncture is below the left costal margin anteriorly, especially perhaps in the flabby-walled abdomen of a woman who has recently given birth to a child.

(3) The ascent of the diaphragm is much more rapid, it would appear from our limited experience at Mundesley, in the case of a woman who has recently been confined than in ordinary cases Perseverance with the injections gradually brings good ascent in the latter, unless there is much pleural thickening, a condition which should be assessed in advance. The diaphragm must not be pushed up too rapidly when symptoms of toxæmia are severe.

Dr. Barnes is dealing with this procedure in its applicability to women with pulmonary tuberculosis who have just been confined. The references at the end of her article show that she is aware of its more general use in cases of pulmonary tuberculosis. For those who are not tuberculosis experts I should just like to emphasise that the procedure is much more commonly used for other patients than for those recently confined

I am, Sir, yours faithfully,

Mundesley, Nov 11

S. VERE PEARSON.

DOCTORS IN EMERGENCY

SIR,—I am reluctant to criticise the plans of the Government for an Emergency Medical Service, "but clearly at the outbreak of war the best place for a doctor is to be with his own patients. The most obvious air-raid post is his own consulting-room. He might well find that in the first few hours of an air-raid where he was most needed was on his own doorstep. What is most important is to avoid any immobilising of doctors by collecting them together before there is any need for their services Proper coordination is most important and a big step was made towards it by an arrangement that not all the Territorial Army hospitals originally designated were mobilised on the outbreak of war This means that hundreds of doctors are available for treating civilians." The quotation is from a *Times* report of a speech by Mr. Barnays, Parliamentary Secretary to the Minister of Health, on Nov. 30, 1938. It is not quite evident that in London the immobilisation of doctors has been avoided, and I am not quite sure whether the present Minister of Health will wish to have the pronouncements of a former parliamentary secretary recalled So I will add nothing to the (at that time seemingly wise) speech of Mr. Bernays

I am, Sir, yours faithfully,

Nov. 12

HAUD IMMEMOR.

EARLY SCHIZOPHRENIA

SIR,—Experience of shock therapy seems to have established that the duration of the schizophrenic illness is considerably shortened thereby and that the sooner after onset treatment is commenced the greater the chance of complete recovery. It will be interesting in time to compare the type of case that responds to treatment with the type that shows no improvement. It has always been said that certain biogenic schizophrenics are doomed to progressive deterioration and chronic dementia whatever is done for them, while others recover with expectant treatment or indeed any treatment which happens to be the current vogue Professor Golla, however, stresses the fact that many of these chronic dements, particularly of the mute negativistic variety, who would be classified as biogenic examples, can and do return to normal if given intravenous sodium amytal. They may remain normal for periods varying from an hour to forty-eight hours During this time they may discuss with insight their own illness and describe critically what has been going on around them during the time when they have been casually accepted as "vegetables." Here at last we seem to have stumbled on that philosophers' stone of *our legal contemporaries—the lucid interval*, *an interval*, too, during which the tube-fed patient may take an ordinary meal with enjoyment and be stirred from a statuesque immobility to walk appreciatively in the garden

This complete if brief restoration of function gives us the greatest encouragement to institute the treatment of *all* schizophrenics as early and as energetically as we safely can The best time in schizophrenia in which to start shock treatment is arbitrarily laid down as within six months of the onset But it is difficult to date the beginning of a breakdown. Acute schizophrenia is so frequently an explosion following upon months or years of schizoid events More difficult still is it to tell the time of onset in those with a fairly long history of waywardness and general maladaptation Some prominent schizoid incident may be fixed on as the starting-point of the illness As a rule, however, treatment is not begun until the patient is certified, or is so apathetic that his volition is simply a docile acquiescence to outside suggestion from doctor or parent. The early schizophrenic in a hypersensitive condition shrinks from voluntary entry into a mental hospital, or would soon after admission tender his 72 hours' notice to quit Yet the time for treatment would justifiably appear to be long before the need for certification makes itself obvious and certainly before lack of affect becomes an established sign

How many psychiatrists see such early cases and know with the conviction of experience that they are dealing with those who undoubtedly will develop a schizophrenic illness? Yet such patients are just the ones to benefit by an immediate course of shock therapy Improved technique has robbed the treatment of most of its risks In time the psychiatrist will probably prescribe shock therapy with the same confidence as the surgeon who advises early removal of an inflamed appendix to avert the onset of an acute abdominal emergency Yet the mental specialist has necessarily to defer measures he would fain employ forthwith until a like emergency occurs—the emergency of certification. At present he can only advise and hope that his early schizophrenic will not shortly perpetrate some bizarre crime or stage a fantastic act of suicide Any alteration in the existing law calculated to enforce treatment would constitute a grave attack on the liberty of the individual So we cannot look to amendment of the Mental Treatment Act for a solution If such early treatment is to become usual, then it must be instituted outside the precincts of the mental hospital No matter how luxurious or remote from the main building the reception block may be, yet it remains to the early psychotic with insight an integral part of a mental hospital

A practical and promising measure is that psychiatric clinics at general hospitals should have a few inpatient beds at their command Theses clinics too often become a dumping ground used by the medical and surgical staff for their chronic neurotics Thus the object for which the clinics were formed—the diagnosis of early psychoses—has a diminished chance of attainment On the other hand, it is essential that all neuropaths *should* be referred to the clinic for diagnosis and, if necessary, for observation, but not for repeated and ineffective psychotherapeutic interviews For success a fundamental condition must be the cooperation of the family doctor He should be invited to submit for expert opinion all adolescent cases of anxiety or obsession, of neurasthenia and hysteria and (if there is no organic diagnosis) those labelled general debility or general asthenia

I am, Sir, yours faithfully,

Wyke House Mental Hospital
Isleworth, Middlesex, Oct 30
J T D CLARK.

A PLAN FOR BRITISH HOSPITALS

SIR,—I have read the Plan for British Hospitals and your leading article most carefully and have discussed it briefly with two or three medical colleagues in the House It is sound policy to ventilate during the war the experience and ideas that have been accumulating, so that when peace comes we may take advantage of it to start off on sound lines for the future untrammelled by conventions of the past But the natural liberalism of our profession shies at socialism and loves the conservative method of progress, consonant with the orderly biological method of development of nature

Let me first touch on a few minor points Your commissioner writes "The individualistic outlook of the consultants has prevented anything analogous to the Mayo Clinic springing up" Surely Sir Arthur Hurst started New Lodge Clinic as a direct inspiration from the Mayo Clinic, and Sir Edmund Spriggs at Ruthin is another exception So, too, is the team work of many combined practices

In mentioning emoluments of the municipal service it is misleading to state salary without some estimate of the value of perquisites—board and lodging, rates and taxes, coal, gas and electricity, telephone, garage and various services

"Why does a voluntary hospital need some 20 seniors and 30 juniors?" Your commissioner fails to mention a fourth reason, because so many of the voluntary hospitals are *teaching* hospitals Every case is the subject of minute examination, research and record, and the work is purposely distributed amongst as many medical, dental and nursing students and consultants as possible for efficiency, so as to spread experience and responsibility

In discussing the Emergency Hospital Service, he omits the pickings and allowances which must be added to the salaries quoted

He says "the paid part-time worker is not a success" In general I disagree Outside work keeps the part timer in touch with the outer world of fresh experience and ideas, and of criticisms which he sadly lacks when he is entrenched in a whole time service.

So I come to the broad questions raised Regionalisation and decentralisation in general are both desirable, as recommended by Lord Dawson's committee some 15 years ago The regionalisation of government ministries, especially the Ministry of Health, is a precedent and an opportunity not to be missed

But I object to any suggestion that a National Hospital Corporation should "take over hospital endowments" This is confiscation of property and responsibility, entrusted to governing bodies, which many of them would resist An official corporation has little soul and tends to become merely official, based on regulations and audit Voluntary bodies command the kindly help of their subscribers and supporters, and have a special value for the spirit and comfort of the patients. Indeed their very diversity, if kept within bounds, is of value for originality and progress

Above all I dissent from the proposed divorce of hospital from private practice It would divide the profession sharply into two classes, belittling the personal and domestic care of the people and tending to force them into hospital. This is the natural error of those whose attention is mainly fixed on acute disease. Even for such cases early diagnosis and prophylaxis in daily life, and the aftercare on return to home and work are of paramount importance. The future of medicine seems to me to lie in the increasing development of family practice, with an emphasis on physiological habits, prevention and early treatment; in the greater use of district nurses, midwives and health-visitors; in the greater association of general practitioners with hospital practice and in their free access to hospitals for consultation and for the treatment of acute and chronic cases that cannot be treated at home

Improvement both in hospital services and in general practice must be looked for on lines of natural development, in accordance with the customs and habits both of the profession and of the people, with utmost publicity, diversity and enterprise allowable under recognised and sympathetic control. Only so will the Plan for British Hospitals be a useful contribution to the progress we all seek.

I am, Sir, yours faithfully,

House of Commons, Nov. 8. FRANCIS FREMANTLE.

SIR,—So the cat is out of the bag at last—liberated, of all people in the world, by the Editor of THE LANCET and his special commissioner! A state medical service it seems is to be foisted on the public and on consultants surreptitiously and in war-time without submission either to Parliament or to the consultants. Incidentally it may be pointed out that the central emergency committee of the B M A, which is chiefly responsible for the "eclamptic primigravida" of your special commissioner is a body of 38 members, of whom exactly 6 are London physicians or surgeons! A two months' experience of hospital work in the E M.S has indeed for many of us gone far to dispel any leanings which we may previously have had towards a state medical service.

Is it really true that "before the war London consulting medicine was slowly dying"? And if so, how does your special commissioner account for the fact that, according to him, "the London specialist population is grossly overcrowded"? I join issue with him at once when he asserts that each year more and more of the first-rate students go into general practice This is not at all my experience In fact when my general-practitioner friends ask me to find them a promising assistant or partner, I am rarely successful in my search Moreover there is seldom, if ever, any lack of candidates of the highest professional standing for vacancies on the staffs of any of the larger voluntary hospitals Then again, it is surely no new phenomenon for the young consultant to have difficulty in making both ends meet during his first few years I fancy that this was always the case Such was certainly my own experience It is quite true that, largely owing to provincial and suburban competition, the financial outlook for the young London surgeon is not so rosy as it was 20 years ago. But even so he seems to do reasonably well, as also if he is worth his salt does the young physician Most of the consultant's financial difficulties are due to preposterous overhead expenses If hospitals would provide for a consideration simply but suitably equipped consulting-rooms for their staffs for private practice and increase their pay-bed accommodation, these financial difficulties would largely vanish Moreover the hospitals also would benefit from such an arrangement. They would receive rent for the accommodation and their staff would be more constantly on or near the hospital premises.

I think that your commissioner might have omitted the gibe about consultants who earn an odd three guineas by securing priority of admission to hospitals for their patients In no reputable hospital would such a procedure be tolerated for a moment. As a visitor for the King's Fund, I can vouch for this for all the hospitals which I have inspected, and I am sure that it is true for most, if not all, hospitals of repute.

"The efficient firm . . . practically never needs a consulting physician and seldom a consulting surgeon" This is a ridiculous statement. In my experience it is the more efficient firms who are aware of their own limitations in cases of special difficulty, and who consequently most often ask for the consultant's help As for the inefficient firms, of whom fortunately there are not many, any experienced consultant could a tale unfold in this connexion (just as no doubt efficient firms could unfold tales of inefficient consultants, of whom naturally there is bound to be a certain number).

Your commissioner has certainly made out a good case for regionalisation and decentralisation But, as Dr Izod Bennett points out, there are cogent arguments against such a project, and I agree with him that the insistence on a whole-time service is the crux of the problem, and consider that there should always be at least a leaven of part-time consultants Certainly in future all members of the hospital staffs, and not only as at present an increasing proportion of them, should be paid for work done for the hospital. Is it the case that "private practice after a time becomes more important than public service"? Surely your special commissioner can have little experience of the work of most voluntary hospital staffs, who, though their hospital work is honorary, give it precedence over their private practice There are no doubt a few black sheep, but certainly these are quite exceptional. On a part-time basis such individuals would be quickly liquidated so soon as their tendency became apparent. By the employment of a largely part-time and non-pensionable staff the hospitals would effect a large salary economy, and would undoubtedly benefit in other directions There are certain aspects of doctoring which can be appreciated only by those engaged in private practice I very much doubt if students taught entirely by full-timers would make as efficient general practitioners as those taught, in part at any rate, by part-timers. They would possibly be more erudite, but would they be as good clinicians? Do not such students tend to subordinate history-taking to laboratory investigations? This, without doubt, is the impression which most examiners get. Nobody can argue as to which of these methods of approach is the more valuable to the general practitioner.

Finally, I doubt whether it would be only "the very rich" who would decline to become glorified outpatients under your commissioner's plan, but would prefer, as now, to pay three guineas, or even five elsewhere. I wonder how many of these full-time directors, or deputy-directors, would devote an hour of their time to a consultation, as do most physicians. No doubt your commissioner would consider this an hour wasted But the patient would not.

I am, Sir, yours faithfully,

Nov. 7. MAURICE CASSIDY.

SIR,—Like so many of your readers I found myself greatly stimulated by your commissioner's article and and I looked forward to a considerable correspondence, which has now begun to appear in a most satisfactory fashion. There are many points on which one could join issue with the writer, one central one being this *question of whole-time medical staff* For many years I have been convinced from observation and reason that part-time employment is better than whole-time, for every kind of worker, not least the doctor The part-time worker has to keep in touch with other people, and in the case of hospital work he benefits from the double stimulus of his scientific contacts in the institution and his rather more competitive life with his colleagues outside The lamentable experience of official medical organisation which most of us have had recently in itself suggests a confirmation of this point, and the introduction of a state medical service must be postponed for many years on this account

The special *hospitals* receive no mention in this interesting scheme, and all who are familiar with the reasons for their existence and with the valuable contribution that they have made to medicine as a whole will feel that this is a part of the organisation which deserves some thought

May I suggest that since so many of us have time on our hands just now, and since creative occupation is so valuable under these circumstances, you should offer a prize for the best presentation of a plan which is sent in by the end of the year? If these schemes were condensed and concise and each were sent in under a pseudonym, you would, I think, get a great deal of valuable material that could be made use of later on If the Minister of Health were then to appoint a committee which was representative of all branches of the profession and included lay administrators (who should also be allowed to take part in the competition), some extremely valuable work might be done during the war to prepare the ground for the post war era

I am, Sir, yours faithfully,

London W 1 Nov 10 PSYCHIATRIST

SIR,—Can this report of a broadcast be true?

> This is *The Lancet* calling over the Evacuationsender, from Aylesbury in the Chiltern Hills where the Ministry feeds its flocks Here is our news bulletin, copyright reserved the announcer being our special commissioner for wrecking the established system of hospital service

"Et tu," Editor? And your special commissioner? "This is the most unkindest cut of all" And, yet I doubt not that you both flatter yourselves that "you did what you have done in a general honest thought" But, scarce have one's colleagues come to rest from the high explosive which dispersed them over the face of earth and water than you assert that they will never recover from the *shock* *You threateningly* proclaim that the hurried organisation of the Emergency Hospital Service is to have an "inexorable upshot," and that "the whole aspect of hospital and consulting practice is bound to change beyond recognition" Maybe, now that the hydra headed wreckers have shown themselves *so early, those who prize the* splendid hospital service which has been built up through the centuries will hurry back from the periphery to the centre of the Sectors and hold the fort for their comrades who are further afield, and save the voluntary hospitals of London from being made safe for bureaucracy

One is tempted to proceed by question in the House and ask the Minister for Home Security "whether the broadcast from the Chiltern Hills has been brought to his notice, and whether he will assure *those* who are absent on national duty that the wreckers will be interned for the duration of the war and thus prevented from spreading alarm and despondency, whether the policy of frightfulness will be checked and the chances of 'blitzkrieg' nullified by appropriate *Orders in Council under the Emergency Powers* Act" Or one might ask the Prime Minister "whether, in order to counteract cleverly contrived propaganda, he will make a categorical denial that the First Lord of the Admiralty is in any way responsible for this attempt to torpedo the Home Front, and that we may be assured that the bombers and wreckers have been driven back, and that they have returned to their bases with heavy loss"

But question in the House is so notoriously liable to set the servants of bureaucracy composing an evasive answer that I hope I may be permitted to remark that I am forced to doubt whether your commissioner is unbiased All through his review there runs an undercurrent of gibing, and gloating over the difficulties and anxieties of consulting practice—but never a word of praise for those whose names have been and are famous in British medicine, or for the high regard in which British medicine is held in other countries

Your commissioner seems to have a bee in his bonnet about consultants, particularly in London, as witness remarks such as the following, which seem to breathe malice and hatred and all uncharitableness "Before the war consulting medicine was dying The consultant is to be rescued from penury The personnel of Harley Street is in danger of bankruptcy Consultants get their patients by the charity of the G Ps Their large fees have put their services outside the range of whole sections of the population as a private proposition" Not a word about the successful efforts they have made to bring within the reach of all classes the best that scientific medicine has to offer "They are willing to see for an odd three guineas patients who want to get into their hospital beds without going on the crowded outpatient waiting list" Not a word about the honesty of the patient and his medical adviser in seeking for a private consultation, for which the patient may be well able to pay, nor for the consultant who frequently reduces or forgoes his fee to meet the needs of the patient, nor of the safeguards to prevent undue influence, without regard to urgency, affecting the order of admission to hospital of those on the waiting list

Lastly I quote his dictum that "decentralisation destroys the last hope of the honorary consultants and they must become part or whole-time hospital doctors" This may be regarded rather as a nail in the coffin of decentralisation than as the quietus of consultants as we know them today

You, Sir, talk about the "facts" which are all there for those who care to face them, and you are impressed by the way your commissioner assembles them I venture to say that he dissembles them and attempts to give the appearance of facts to many statements which would not be accepted by those *familiar with the voluntary hospitals and consulting* practice On these so-called facts and the unwarranted assumptions he draws from them he builds a programme, the first part of which is essentially destructive, and the second an attempt to deduce that the whole-time paid worker is the ideal

Assuming the cloak of a far sighted reformer he takes advantage of the fears and anxieties of the moment to try to drive men into whole-time salaried posts in which many would smugly rest content, deprived of stimulus and enterprise, and comfortably await their pensions—satisfied with mediocrity—adding to the great and increasing band of direct or indirect state employees

' There is everything to be said for whole-time and little for part-time service" says your commissioner, and he asserts, I know not on what authority, that "it is the experience of most people that the part-time paid worker is not a success" and that "hospital work should be a career in itself." In conjectural vein you add: "If the immediate future is to breed a new race of whole-time physicians and surgeons . . . and if staffing on a whole-time basis makes for efficiency in work and administration, then it must have come to stay."

But your commissioner agrees that "it is the multiplicity of openings for seniors which has enabled the voluntary hospitals to use and produce a multitude of talented men who have developed individual lines of work and thought. The rivalry has kept them fresh and up to date. Command and responsibility in early middle-age has given them independence and judgment." There has been a constant output of trained men from hospital firms. The country is staffed with them, and that is why the standard of general practice is so high in England today. The E.M.S. is staffed with them. The fighting services are requiring them and there are none too many. Double the size of the units and staff them with whole-time men and you halve the openings for seniors and halve the output at the very least.

"Decentralisation has come to stay," your commissioner likewise boldly asserts, and "regionalisation and decentralisation are both peace-time desirabilities." He argues as if the danger of recurrent war with air attacks was to be the deciding factor in favour of decentralisation, and says that if there is any danger of future war decentralisation must remain. Are we, for all time, to live in caves? Are government offices to remain dispersed or to be built underground? Are houses to be built with bomb- and gas-proof rooms? Are all the facilities with which large town communities provide themselves to be withdrawn?

For regionalisation and careful distribution of hospitals there is much to be said, but that does not carry us far towards the complicated and involved organisation which your commissioner regards as an essential corollary It is over decentralisation that your commissioner drifts into the fantastic. He would have the outpatients in the centre, the hospital beds on the outskirts. He would have a peripatetic staff wandering from periphery to centre and back again, accompanied by their residents and students What of scientific departments? Are they to be duplicated? And X rays also? Is the pathologist, the physicist and the biochemist to be available in both places? Are the records to be available in both places? Is the student going to find it easy to plan his day with the hospital bisected? Are the members of the staff going to find it easy to collaborate?

No, Sir, an efficient hospital must be self-contained. If it is to be run economically, duplication of expensive services must be avoided. Where the population is, there must the hospital services be also—both inpatients and outpatients—not only for the sake of the sick and for the sake of collaboration between G.P.s and specialists, but for the sake of the patients' relatives and friends who wish to visit them after a busy working day Three days a week they go along, and often a business or a home is run from the sick bed to the comfort and peace of mind of the patient and the benefit and advantage of the business, the family and the home. Do hospital patients wish to be treated on the outskirts? Does the reaction of the people to evacuation encourage us to think so? Do private patients hanker after treatment in the country? No, Sir, where the people are there must the facilities be. And in the great cities, on which roads and railways converge, there must the super facilities be.

Lastly, let us examine your commissioner's ideas for the central control of the service he envisages. He would have a national organisation. He suggests a five-year charter for the hospital authority, and every five years a *searching* examination by Parliament—the body which passes departmental estimates for hundreds of millions in a thin house in a few hours He talks of these measures as safeguards against red tape. Why, initiative, originality and efficiency would be stifled in bureaucracy—the umbilical cord of the lusty babe of his dreams would be tied with red tape.

"Suffer not the old King under any name!"

"All we have of freedom, all we use or know—
This our fathers bought for us long and long ago."

First your commissioner would stain his hands with robbery with violence, like the rape of Poland. He would take over voluntary hospital endowments, sell metropolitan sites; and then undertake *vast* building operations Is this what the war is for? I thought it was to fight against methods of this sort. Enough of decentralisation, and all the lust of loot which it engenders!

"I love my country; and am not
One that rejoices in the common wrack"

I am, Sir, yours faithfully,
ALFRED WEBB-JOHNSON.

Portland Place, W.1, Nov. 8

SIR,—I do not feel that the correspondence column of the medical press is the right place to discuss the merits or demerits of the plan for hospitals put forward by your special commissioner. The council room, where reason replaces invective, and argument is of more value than dogmatic assertion, would be more suitable.

One thing is, however, clear and is made clearer by your commissioner's article and by experience of the two months old E.M.S. Consultants must put aside their traditional dislike of medical politics and their differences of school or outlook, and unite in council if their views are to gain the hearing which their position, both in the sphere of education, and, I believe, in the esteem of the public, entitles them If your commissioner's article leads to such counsel being taken it will have done some good, and he may be forgiven the venomous and uninformed attack on consultants to which anonymity lends a weight which would probably disappear over a signature.

I am, Sir, yours faithfully,
E. G. SLESINGER.

London, W.1, Nov. 11.

SIR,—In your cheerful if somewhat premature obituary of the voluntary hospital system, you remark that hospitals exist for the benefit of the public. Among those public benefits I should accord a high place to the training of the next generation of medical men. Dr. Izod Bennett questions what he happily calls your commissar's skill as the obstetrician of a new system; to continue the gynæcological metaphor I would suggest that the procedure he advocates is also a sterilising operation. His only contribution to the consequent great difficulties of rearranging medical education is two hospital buses! Although he says that the units point the way to a satisfactory whole-time service, I should maintain that the success of the unit system in this country is due to its restriction to one firm in each of the three main branches, so that the student receives only part of his teaching of the more academic sort, and the rest from those who are in daily contact with the problems of private practice To my mind this is essential I am not clear how the "private consultant" airily referred to on p 949 is to be created, I have always believed that the right way for a consultant to build up his practice is by gaining the confidence and support of his own pupils Yet under the conditions proposed a medical man is to be debarred from calling upon the services of his old chief, while I presume the new type of consultant is to advertise discreetly that he is willing to rank as such.

It is news to me that before the war London consulting medicine was slowly dying A very distinguished consultant told me forty years ago that he would be the last general physician, thereby falsifying his own usually correct prognosis I agree with Dr Izod Bennett that our failure to permit the public clearly to distinguish between the true consultant and the charlatan increases our difficulties That changes must and will come is obvious, what seems clear to me is that if your commissar has his way it would deal a death blow to the well attested merits of the voluntary hospitals as an educational system These can be preserved by far less drastic and destructive methods, such as the Treasury block grants have achieved in other fields of education

I hesitate to attach the label of levity to THE LANCET's attitude, but I do feel, Sir, that you have not sufficiently realised the gravity of the changes you envisage No longer a teacher in a medical school, I sympathise deeply with my junior colleagues in their present difficulties and future dangers It would indeed be a grim outcome of this war for liberty if they should lose their own

I am, Sir, yours faithfully,

Cavendish Square, W 1, Nov 8 W LANGDON-BROWN

SIR,—At the end of your recent leading article you speak of the elasticity of mind and the liberty of action essential in the control of any hospital plan I am alarmed for the future of the medical profession if we don't see that this war is a great opportunity for the Civil Service to get control of the medical profession—through the Emergency Medical Service —and in my opinion that will be a bad thing both for the general public and the doctors Mr Beverley Baxter hits the nail on the head when he says that the average civil servant has no idea of the life of the country, and the pity of it is that they think they know a great deal about it. Who is to watch the position I don't know, but I do dislike allowing our great and free profession—the most liberal and broad of all the professions—to come under the domination of people whose only claim to control is the fact that they have read a bit of classics, and know how to hold a cocktail glass Their background is all wrong, and our slogan should be—Doctors to control all health matters I have had an opportunity of observing medical affairs from many angles, and I am convinced that I am right Like D H Lawrence I feel it in my solar plexus

I am, Sir, yours faithfully,

Nov 5 LAST DITCH

DISCOVERY OF ŒSTRONE OR THEELIN

SIR,—I am writing to inform you of an erroneous statement made in the leading article on œstrone and progesterone in the adrenal gland in THE LANCET of Sept. 9 At the top of page 607, it is stated " and Beall's isolation of it from the adrenal cortex is its first preparation in pure form from any kind of tissue" The reprint enclosed contains conclusive evidence of the isolation of theelin (œstrone) from human placenta The isolation was accomplished in 1938 and the results published during the same year Possibly the error in your article is due to my use of the term theelin Since the first isolation of theelin was accomplished in my laboratory in 1929, and I named the newly discovered compound theelin, I have not seen the desirability of adopting the name œstrone, proposed at a later date by other investigators

I am, Sir, yours faithfully,

E A DOISY

Saint Louis University School of Medicine,
St Louis Mo, Oct 17

⁂ We are indebted to Professor Doisy for pointing out this error It was due not to any confusion of terminology, but to the fact that the writer was thinking of the usual tissues of the body but failed to give the necessary precision to his statement Needless to say, no reflection was intended on Professor Doisy's work on the œstrogen of the human placenta (Westerfield, W W, MacCorquodale, D W, Thayer, S A. and Doisy, E A, *J Biol Chem* 1938, 126, 195) —ED L

WHY NOT NUPERCAINE?

SIR,—With reference to your annotation of Oct 28, we beg to bring the following facts to your notice

The trade mark, Percaine, was registered over 20 years ago, although the product itself was not placed on the market until 10 years ago on account of continued researches The name, Nupercaine, was adopted in the United States, because procaine there was official When percaine was placed on the market in this country procaine was not in the British Pharmacopœia, in fact it did not become official in this country until three years later At the time we were very surprised that the name procaine had been adopted in the B P, and it is to be hoped that it will be changed in the next edition

In the case to which you refer, the confusion was not between the names but between the strengths of the respective solutions As stated in the report of the inquest, the doctor was well aware that he was using percaine and not procaine

We are, Sir, yours faithfully,

Horsham, Sussex Oct 30 CIBA LIMITED

The Lancet 100 Years Ago

Nov 16 1839, p 288

From a leading article on a projected King's College Hospital

the Greeks and Romans had no Hospitals of any kind The Temples of Æsculapius were resorted to by all classes, and they were planned so judiciously, that little doubt can be entertained of their superiority over Hospitals in many respects if superiority be measured by the proportion of recoveries The Greek Temples of Health were not placed like the Hotel Dieu the St Bartholomews the St. Thomases or the London Hospitals in the midst of a crowded unhealthy city They were built as PLUTARCH remarks out of the cities, upon high isolated spots in the suburbs of the town, as in Cos in open plains, as that of Clitonis in Arcadia, surrounded by gardens or sacred groves which intercepted the insalubrious winds and purified the air Mineral waters or rivers for baths were near. Sometimes gymnasia were erected The sick were readily dieted, their minds were calmed or excited by the popular superstition, and living in the vicinity of the Temple they were not crowded within its walls but were introduced at intervals to receive the visits and prescriptions of the God

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By MEDICUS, M.P.

MR. CHAMBERLAIN was kept away from the House of Commons last week and his absence made a very noticeable gap. This was especially the case on Thursday, when the Prime Minister would normally have made a progress report on the war On the same day a special speech should have been made in the City, but neither the Lord Mayor's Show nor the Government statement were the same as usual. The Lord Mayor's Show was absent and Sir John Simon read Mr Chamberlain's speech and read it so effectively that it might have been his own.

The Prime Minister's indisposition brought up the question in the minds of most members as to what would happen if the indisposition became an illness and the illness a disabling one which entailed resignation. Who is there to take Mr. Chamberlain's place? The popular choice would probably be Mr. Winston Churchill, who made his statement on the war at sea on Wednesday and who spoke on the wireless on Sunday night What the House, and the country, likes about Mr. Churchill is his frank acknowledgment of the difficulties and dangers before us—and his equally frank and forcefully expressed belief that we can counter them. But whether Mr. Churchill would be equally acceptable to the political powers that be is another story. And Mr Churchill is a man most loyal where he has given his allegiance, so that it is sure he would support whatever was decided in the country's interest

* * *

The House has discussed national expenditure with detachment, for everyone realises that however many millions are required they must be provided, so that the second reading of the National Loans Bill occupied only 40 minutes. We have also discussed the rationing of butter, bacon and ham and the possible application of rationing schemes to other foods. But it is clear that the only shortages are in butter, bacon and ham, and that these are due to interference with special continental supplies The difficulties of special character affecting these foods may be overcome a little later on; meanwhile, as from the middle or end of December, rationing. What has not yet been considered, however, is a national food plan looked at not from the point of view of quantities and the distributing agencies available to do the work, but from the point of view of the protective foods required, especially for children The effect of butter shortage in Great Britain during that "other war" of 1914–18 and of its still greater effect in Vienna and Budapest, remains a memory in medical minds at least. And such ill-effects must be avoided if avoidance can be arranged.

* * *

The House has devoted a good deal of thought, some of it expressed in questions and some of it in private or group discussions, to the health of civilians and especially the health of children evacuated to rural reception areas Mr. David Adams wanted to know whether the Minister of Health has given instructions as to "the number or proportion of medical officers who should be transferred from evacuation to reception areas" The Minister replied that the authorities concerned have been asked to assist each other, but the suggestion that the Minister himself should accept responsibility for initiating these arrangements seems to point to the only way out It is too complicated a business for the local authorities to deal with in view of the scattering of medical personnel over wide areas and the urgent calls for service for casualty and civil defence services Questions on hospital bed provision for civilians revealed that such beds are available in town and country, but again their allocation and use present great difficulties for local councils or hospital committees or other authorities with limited reference, so that it seems that again the responsibility should be put on the Ministry of Health.

Provision for civilians in war-time involves not merely provision for ordinary medical and hospital attention in sickness, it should at least involve an even more comprehensive public health organisation. This is particularly necessary in the reception areas, where the increase of child population and to a less extent the increase of adult population creates special problems What may we expect in the way of epidemics? Will the townee child population prove to have the same kinds of immunity as the country child population? Will there be cross-infections? What, for example, is the state of diphtheria immunisation in the rural areas? And what can be done about it?

What appears certain is that a more complete control should be exercised over the disposal of the civilian public health (including school medical) services and that provision should be made to bring all medical arrangements in the reception areas up to such a strength as to enable (*a*) an epidemic or epidemics and (*b*) a flood of more evacuees in case of extensive air attacks on towns to be dealt with efficiently and at once It is as necessary to have medical services to safeguard the health of the civilian population as to safeguard that of the fighting services. After all, we are in a totalitarian war and must make totalitarian medical provision. Probably more will be heard of this matter in the next week or so, and we have now got sufficient experience in both town and country under war conditions to enable us to make the necessary arrangements with a fair prospect of success.

FROM THE PRESS GALLERY

Chartered Bodies and War Conditions

IN the House of Lords on Nov. 7, Viscount CALDECOTE, the Lord Chancellor, moved the second reading of the Chartered and Other Bodies (Temporary Provisions) Bill. He explained that the general purpose of the measure was to enable modifications to be made in the constitutional and electoral procedure of various chartered and statutory bodies to meet war conditions. The Lord President of the Council would be authorised under clause 1 of the Bill, on the application of the body concerned, to make modifications of the provisions of the charter Such power would only be exercised for the purpose of securing economy or efficiency. Clause 2 of the bill, which dealt with statutory bodies and corporations and not with chartered bodies, proposed to do the same to these bodies as had already been done in regard to local authorities Among the bodies concerned by this clause was the General Medical Council. It provided for an order in council to be made which would extend the term of office of members, or reduce the number of persons required to constitute the corporation or body, or to perform any of its functions. Clause 3 of the bill did for universities and colleges, other than

Oxford and Cambridge, what had already been done for those two universities, by enabling them to make financial adjustments, prolong terms of office, suspend conditions relating to scholarships, and generally make arrangements for meeting special war-time conditions

Criminal Justice Bill Dropped

Sir SAMUEL HOARE, Lord Privy Seal, replying to a question by Mr LEACH, said that in view of the substantial measure of agreement on the main provisions of the Criminal Justice Bill, and of the time already given to its consideration, the Government would have been glad if further time could have been found to carry the measure through its remaining stages But they had reluctantly come to the conclusion that time could not be found for this work without prejudice to the effort on which all their energies must now be concentrated

QUESTION TIME

Hospital Beds in London

Dr HOWITT asked the Minister of Health how many London hospital beds were evacuated at the commencement of war, and how many of these beds were today available for the treatment of civilian sick —Mr ELLIOT replied At the commencement of war, about 8000 hospital beds in the county of London were evacuated by sending patients either to their homes or to other institutions, and in addition there were about 7500 beds already vacant, making 15,500 in all At the present time there are in these hospitals about 13,000 vacant beds available not only for casualties but also for the civilian sick, who, as I have made clear on several occasions, are being admitted to the hospitals if they are in need of inpatient treatment

In reply to a further question the Minister added I am advised that adequate medical and nursing personnel is available at these hospitals for the cases which are at present coming forward but further proposals were made to me last Friday by a special committee which was representative of all sides of the profession, and these proposals are now under active consideration

Mr CROWDER asked whether the Minister would consider authorising the immediate re opening of London hospitals for the treatment of civil sick on a much larger scale than at present —Mr ELLIOT replied A special inquiry which I made on Monday showed that the nine big London hospitals—the London St Bartholomew's University College Middlesex, St Mary's, Westminster, St Thomas's, King's College and Guy's—all have vacant beds available for the ordinary needs of the population I am, however carefully examining in consultation with the governing bodies and their staffs what steps are possible to increase the facilities and beds available at the central hospitals.

Central Medical Register

In reply to a question by Mr Groves the Minister said that of the 44 608 qualified medical practitioners on the Medical Register and resident in Great Britain or Northern Ireland 43 650 are included in the register kept by the Central Medical War Committee The offers of service recorded in the register are in the case of a number of practitioners subject to their commitments to H M Forces or to local authorities or other bodies by which they are employed

R A M C Officers' Grievances

Mr GROVES asked the Secretary of State for War whether he was aware of the dissatisfaction amongst serving officers in the Royal Army Medical Corps, and particularly amongst the so called emergency officers who were over 40 years of age and who had experience in the last war at remaining as junior officers while comparatively recently qualified men were appointed as senior officers and whether this anomaly would be investigated with a view to its being corrected —Mr HORE BELISHA replied Consideration is being given to cases of medical officers with military experience in the last war whose age and military and professional experience justify a higher rank, with a view to meeting such claims wherever possible

Short-wave Therapy and War Casualties

Sir ERNEST GRAHAM LITTLE asked the Minister of Health whether he was aware of dissatisfaction among specialists practising physiotherapy because of the scanty utilisation of their expert skill in war emergency service, and whether he would institute an inquiry into the number of short wave therapy machines now available in those hospitals in which the Minister proposed to treat war casualties —Mr ELLIOT replied I am aware that during the present lull uneasiness is felt by many specialists lest their skill and knowledge may not be fully utilised I can assure the hon member that the services of the specialists referred to will not be lost sight of when the need arises In the meantime, I am advised by my consultant adviser in physical medicine that the present arrangements are adequate

Midwives and Emergency Service

Mrs ADAMSON asked the Minister the number of midwives, or district nurses practising as midwives who had been called up for service in emergency hospitals since the outbreak of war —Mr ELLIOT replied No midwives or district nurses practising as midwives have been called up for service in emergency hospitals since they are not enrolled as such in the Civil Nursing Reserve, from which nursing staff for hospitals under the Emergency Hospital Scheme is provided Some nurses who possess the certificate of the Central Midwives Board have been enrolled and called up, but I could not state the number without detailed inquiries. I may add that a considerable number of midwives have been transferred from evacuation to reception areas for service in emergency maternity homes, which, according to the returns received, are adequately *staffed*

Welfare Centres in London

Dr HOWITT asked the Minister what arrangements he was making for the re-opening of infant welfare centres in London, in view of the fact that more than 50 per cent of the infant population of London was now resident in London.—Mr ELLIOT replied I communicated with all the metropolitan boroughs on this subject about the middle of October Infant welfare centres are now open in the great majority of the metropolitan boroughs The re opening of further centres is a matter in the first instance for the responsible welfare authorities, acting in the light of their knowledge of local needs and of the facilities available in their areas

Dr HOWITT Will the Minister bear in mind the importance of having the same doctors returned to this service wherever possible as they are known to the mothers and will be better able to carry on with the work which they had been doing before the outbreak of war?—Mr ELLIOT I have had that matter in mind

Cheap Milk for Mothers and Children

Mrs ADAMSON asked how many maternity and child welfare authorities in England and Wales respectively, had submitted proposals for the supply of cheap milk for mothers and young children as requested in circular 1840 dated Aug 2, how many had stated that the matter was under consideration, and the number that had not replied.—Mr ELLIOT replied that 78 welfare authorities had submitted proposals 122 had stated that the matter was under consideration 171 had not yet replied and 38 had deferred consideration

Tyneside Blood-transfusion Service

Mr DAVID ADAMS asked the Minister whether he was aware that the scheme for the expansion of the Tyneside blood transfusion service undertaken with the approval of the regional hospitals officer whereby enrolment of donors had been expanded from a normal 350 to 3000 the estimated requirements for the area being 10 000 for eventualities was being held up and might be abandoned for lack of financial aid; and if the request for a grant of £250 made to him through the regional hospitals' officer several weeks ago would now be forthcoming—Miss Horsbrugh replied: The secretary to the Tyneside service has been informed that any necessary expenditure incurred in grouping blood donors, which cannot be met from voluntary sources, will be reimbursed on receipt, through the hospital officer, of vouchers showing the expenditure actually incurred

Housing and Sanatoriums in Wales

Mr James Griffiths asked the Minister whether, having regard to the urgent need for the provision of new houses in various areas in Wales, and in particular in the rural areas, revealed in the report on the anti-tuberculosis services in Wales, and in the surveys undertaken by his department, he would give favourable consideration to the approval of schemes to meet the most urgent cases—Mr Elliot replied I will certainly consider any such schemes most sympathetically, especially for the rural areas

Mr Griffiths asked the Minister the number of patients on the waiting list for admission to tuberculosis hospitals and sanatoria in Wales on the last convenient date, what steps were being taken to increase the available accommodation; and if such schemes would be given favourable immediate consideration—Mr Elliot replied I am informed that on October 28 last the number of patients on the waiting-list for admission to tuberculosis sanatoria and hospitals in Wales was 225, or, including patients discharged by reason of the emergency hospital scheme and awaiting re-admission, about 600 The hutted hospitals in Denbigh and at Chepstow are making steady progress and these will, I hope, be of assistance, subject to the requirements of the casualty service, in connexion with the treatment of tuberculous patients.

Medicinal Plants

Sir Joseph Leech asked if the Minister of Health was aware that there was a shortage of supplies, and a great rise in cost, of medicinal vegetables and plants hitherto obtainable from overseas which could be grown in the United Kingdom, and what steps he was taking to deal with this situation—Mr. Elliot replied. I am aware that there is a shortage of a few medicinal plants grown abroad, and that consequently there have been some rises in price I have the situation under careful review and am taking steps to encourage so far as practicable the cultivation in England of the plants in question.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 28, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1330; diphtheria, 1002; enteric fever, 32; pneumonia (primary or influenzal), 543; puerperal pyrexia, 138; cerebrospinal fever, 25; poliomyelitis, 21; polio-encephalitis, 6; encephalitis lethargica, 2; dysentery, 47; ophthalmia neonatorum, 73. No case of cholera, plague or typhus fever was notified during the week.

Deaths.—In 126 great towns there was no death from smallpox, 3 (0) from enteric fever, 1 (0) from measles, 3 (0) from scarlet fever, 3 (0) from whooping-cough, 26 (1) from diphtheria, 34 (2) from diarrhœa and enteritis under 2 years, and 28 (2) from influenza. The figures in parentheses are those for London itself.

Croydon, Southampton and Hull each had one death from typhoid. Fatal cases of diphtheria were scattered over 19 great towns, Plymouth reporting 3, Chester, Gateshead, Leeds, South Shields and Leicester each 2. Liverpool had 4 deaths from diarrhœa, Hull, Birmingham and Nottingham each 3.

At its eighteenth annual convention the American Congress of Physical Therapy awarded one of its gold keys for distinguished research during the last year in various fields of physical therapy to Dr J. B Mennell.

. . . . IN ENGLAND—NOW

(FROM OUR PERIPATETIC CORRESPONDENTS)

Bart's is the head of a sector which extends from London to Luton, and its staff is scattered throughout the sector. The clinical students likewise are all distributed throughout the sector in 13 different hospitals. It so happens that the hospitals are collected together into three groups, with three large hospitals in the centres—Bart's, the Friern hospital at Southgate, and Hill End hospital at St. Albans. The students, who number about 450, are more or less equally distributed in the hospitals around these centres. There is now in some ways more clinical material than we have at Bart's in peace-time. The students in their first clinical year are based on Hill End, where are the professors of medicine, surgery and midwifery, whose normal duty it is to give preliminary instruction during the first three months of the students' course.

In their intermediate years the students are based on Bart's, where they can get all the special department teaching they need. There are outpatient departments running in medicine, surgery, gynæcology, throats and ears, eyes, orthopædics, skins, tuberculosis and V.D s. Also from here arrangements have been made for them to do fevers and psychiatry. The final year students are housed at Friern hospital, where they get special tutorial education for the final examinations. After they are qualified, those desirous of taking their M.B. are being stationed at Mill Hill School, which is the headquarters of the sector and has been converted into a hospital. Teaching in midwifery goes on throughout the sector and it has been possible to arrange a larger number of cases than we get normally. All this work has been going on since Sept. 15.

The pre-clinical students have gone to Cambridge, where the first year are taught at Leys School and the second year in the University laboratories. They live in Queens' College and in University lodgings. The entry this year is actually larger than it was last year.

Athletic facilities have been provided at Mill Hill School and in some of the other hospitals, and at Cambridge the students are allowed to use the Queens' College athletic ground. We seem to have managed to get things going extraordinarily well. We were given three months in which the students were to be free from education, as it was thought the world would be in such a state of chaos as to make it impossible, but thanks to the efforts of an energetic dean and his assistants, a first-class scheme has been set going which compares very favourably with the normal course which we can give at Bart's.

* * *

I recall meeting a German delegate at a medical conference a year or two ago He was a tall, broad-shouldered Nazi of about forty, quite lacking in subtlety, and with that naive, aggressive enthusiasm which is at once appealing, pathetic and exasperating. He had quite an important official position in the medical organisation of the Reich, and I could not help wondering how many learned and more mature "undesirables" had passed on into concentration camps or exile before he and the empty place met together. The morning session finished, none of the British seemed to be responsible for giving him hospitality. I was rather tired, and did not want to listen to German, still less to exert myself to talk it; but I did not like to see him go off by himself, so I asked him to have lunch with me. We strolled across Westminster Bridge, and I managed to keep the conversation matter-of-fact and simple, which was all I could encompass in my halting German He could not speak English, knowing only isolated words. Opposite the Horse Guards, he told me with great delight that on his way down that morning he had got a fine snap of them; and we halted a moment or two to admire them again Till then he had been a pleasant if somewhat stiff companion, but as we moved on again quite suddenly he started to tell me of his fear of *Bolshevismus* It was as though Dr Goebbels had put on a gramophone record He hoped that we British would take our stand by them, to fight the accursed thing What could not Britain and Germany do together? It was clear that his medicine took a very secondary place to his Nazi religion—or would the word dogma be more accurate? Clearly he had been waiting the right moment to buttonhole me with his message of salvation I grinned at him, and remarked in my own tongue that in England the way we usually fight a bad idea is by putting forward a good idea, because we have learned by now that you cannot crush ideas merely by cracking the heads that hold them Alas! he could not understand it in English, and I could not get the idea over in my attempts at German, so that we rather lost contact It was a pity, for he might have passed it on to Hitler on his return to Germany He ate a good lunch, and became an ordinary human again, and we pledged each other in iced lager But we lost contact again when I tried to find out why he was so frightened of *Bolshevismus* and why his emotions were so disturbed about it, if he thought his own ideas were so much better, why was he not more confident about their strength? I tried to tell him that many of us felt that they must be very frightened and unsure of themselves to allow themselves such cruelty in persecution, I do not know whether he understood, and he only seemed hurt at my obtuseness We walked back to the conference hall almost in silence, said Auf Wiedersehen, and as far as I know passed out of each other's lives for ever But as I look back on the encounter I feel very sad that for lack of the ability to talk German I missed the chance of explaining that brave tolerance which is a very precious part of our tradition; but I am even more sorry that we never got close enough for me to be able to tell him that I was aware of his attempt to *use* me, to proselytise me, and that by so doing he was himself throwing away the chance of making a friendship Somehow I do not think he is a man who would read *The Lancet*, but if this paragraph is brought to his notice, he may rest assured that I think kindly of him and wonder if he still misses the real fullness of life by throwing away the substance for the shadow So many young Nazis, idealistic, grasping eagerly at a world which will be braver and cleaner than the old world, have done the same, and gone pitiably astray

* * *

The air raid precautions of London have to date been responsible for injuries, mostly minor, to 110 patients treated at King's This is the extent of the physical sacrifice of the neighbouring populace on the altar of its own security It is a miracle that the sacrifice is not greater still, for not only have we been converted indirectly into blind creatures who have not yet developed that compensatory sixth sense, but obstructions have been strewn in our paths with rare abandon Strange to tell, the obstructions which have taken greatest toll are those placed there for our peace-time security—the lamp post and the curb That silent blind sentinel, the lamp post seems literally to step from its fixing and maliciously crack the passer-by over the eye or the nose—its favourite targets Apart from these 110 cases of blackout injuries our own staff had two casualties in the shape—or colour, rather—of black eyes Our irrepressible reception officer, after having steeped himself for a life time in the incredible terminology of skin diseases, comes out with a new diagnosis on each occasion Not for him is a black eye just a black eye Recently it has been a periocular hæmatoma

The kerb registers a better score than the lamp post. To date it leads 13 : 7 Its favourite infliction is a Pott's fracture but it allows itself a fairly liberal field—sprains, bruises even dislocated fingers, and on one occasion a fractured fifth metatarsal, of which it must be immensely proud The kerb has an ally, we have found—C_2H_5OH

Sandbags and trenches, the real war personalities, have not quite done the damage expected of them, though both have made a contribution What damage they have caused, however, has in the main been a more workmanlike job Sandbags claim 8 Colles fractures, 2 ribs by simply getting in the way, and 1 serious spinal shock from a low bombing attack It just fell off the top layer at the right moment, gauging exactly the ground speed of its unfortunate victim

Of course there are other villains in the piece Steps in the garden, stairs indoors, wet leaves on the pavement, and tram-lines in the road After a study of this formidable list of casualties, my advice to my fellow men (and women) is never to ride a bicycle after dark They are in truth engines of destruction If you must ignore my advice, and seek death on a bicycle in a blackout, your chances of meeting with it will be greatly increased if you choose a road on which tram lines are laid

What of age and sex? I should be accounted no statistician at all (which in any case I am not) if there were no mention of these two incidentals Well, our youngest is 1 year Probably his first walk Our oldest is 79—almost literally her last walk As for the sexes, which is the less careful? Or which is developing feline vision? Or which goes out most after dark? Or which—but never mind I cannot in any case supply any of the answers, interesting though speculation may be

Actually 59 are women and girls and 51 men and boys, so the favours are fairly distributed

* * *

One's activities as a peripatetic having been limited by the petrol ration, it may be well to consider how the war has been affecting us in our southern suburb As one walks along the high street of what was once the village from which we have evolved, one seems to see more middle-class middle-aged men than one used They appear fairly active, they have a couple of dogs on a double leash and carry a basket into which they place their purchases made at the various stores and shops As in August and September, 1914, there are lots of people without enough to do They may be divided into those that have got jobs in the services, military or civil, and those who have not The sprightly middle-aged preponderate among the latter They have had letters from the W O, in reply to theirs, thanking them for their offers of service but regretting they are too old, so they go to the pictures and have seen the "Four Feathers," watching intently for any mistake in the manual drill, and when, in the news reel, they saw a film of the boys marching through France they held their breaths and their hearts stood still They yearned to be there, if the W O would have them they would not haggle any more for their old rank One good thing this picture has done is to stop them boasting about the Great War "Yes, you boys," they were beginning to say, "you will have to go through it and it will be pretty awful But it won't be like the Great War Why, in 1915——" And then they saw Aubrey Smith as the Crimean Veteran saying exactly the same thing in 1898 "There were the Russians Guns, guns, guns And there," dipping his finger in a glass of claret, "was the thin red line" They have roared with laughter at the innocent subaltern who said, "I suppose the men were very badly fed, sir"; but since they came out they have ceased to speak of 1914–18 It is about the only laugh we've had in nearly six weeks, with an occasional one caught from Tommy Handley or Arthur Askey Except however for the necessity of controlling their wander longings and finding little jobs to make themselves think they are busy, the men have had nothing much to worry them It is on the womenfolk that the strain has been falling, and that is the strain of the blackout In the war of nerves it is definitely a factor to be considered This again is affecting those in middle age rather than the younger evacuees; and this is not from memories of the last war, for there are many that have had no experience of a bombing-raid. Some have as mates that strange anomaly the man that is useful in the house; but the most of us are not like that and creep away after we have said, "Can I help you, my dear?" They have then had the whole responsibility of procuring material, making curtains, putting them up and finding out whether they work. Then, just when they think they have finished, there comes a knock at the door and a polite air-warden draws their attention to the fact that a light is showing from such and such a window. No wonder they have felt themselves abused and ill-treated! Then came the full-moon and the lights were no longer seen Now that has gone and the skies are overcast again and each chink blazes down the road like a beacon stirring wardens once more into knocker activity.

We are busy buying bags and suchlike for our gas-masks. This is not mere vanity, for the strings were beginning to cut the cardboard of the boxes. To this however there is one exception It is our Mary, a little servant from Durham. She firmly refuses She would buy one for the King, or for Prince Edward; but for that Hitler, NO!

OBITUARY

ARTHUR PHILIP BEDDARD

M D. CAMB., F R.C.P.

EVERY Guy's man who was lucky enough to be a student or house-officer under Beddard, however long ago, can quote his sayings verbatim, for they were of the kind that stick in the mind, but few knew the man himself. He never missed his round but never attended a staff meeting To his juniors he seemed unapproachable and even frightening, he appeared, debonair and bowler-hatted, at the Front Lodge for his round, taught magnificently, and disappeared again as completely till next time His visits had something of a descent from Olympus about them, but his words did not need this effect to give them weight.

Elliott & Fry, Ltd

Arthur Philip Beddard, who died suddenly on Nov. 8, was the son of James Beddard, F.R C.S, of Nottingham He was educated at Shrewsbury, Trinity College, Cambridge, where he took a first in both parts of the natural sciences tripos, and Guy's Hospital. where he qualified in 1895 "From about 1898," writes E I. S, "A P. Beddard and myself were demonstrators of physiology under E H Starling and later M. S. Pembrey. We had common interests in our work, and before long in researches on diabetes and other subjects. I remember the shyness of the first months, in him it took the form of abruptness, beneath which was soon revealed a keen, sensitive and independent mind. A better colleague no man had; and his friendship, his fresh, amusing and downright comments on men and things, and evenings with him at the Pops or in his happy home in Seymour Street became a valued part of my life. He brought to his medicine from the physiological laboratory directness of thought, a searching after causes, and an aversion from publishing any observation, and still more any explanation, that was not confirmed"

In 1900 Beddard was assistant physician at the West London, and a year or two afterwards he was made assistant physician at Guy's From the first he was a revolutionary. He was quite unaffected by tradition. whether it applied to smoking in the Park (history says he was the first member of the staff to do so) or to the teaching of medicine. He was ruthless in sweeping aside ideas he thought out of date and sometimes his way of disagreeing with his seniors was more forcible than tactful When he taught physiology he had its clinical applications in mind. Later he was the first to base his teaching of medicine on physiology rather than morbid anatomy, on which it had been built at Guy's for a century, and probably he pushed morbid anatomy too far into the background He had the kind of clear intelligence—decisive and free of all woolliness—that students want in their teachers, and he combined this with a ready wit and a gift for turning a striking incisive phrase and choosing an apt anecdote On his round he came to a man who had been in hospital some time with a diagnosis of hepatomegaly. After a short examination Beddard remarked, "This must be one of three things, and two of them are impossible—it is a hydatid"; and so it was On the 'phone it was just "I am Beddard," and then, "Very well, but if you don't do as I say it will be all over bar the shouting." "When I was up for membership," he used to say, "they showed me a man with aortic regurgitation and mitral stenosis. But I thought I would pull their legs, don't you know, so I said he had pulmonary regurgitation and tricuspid stenosis; and the poor fish couldn't think of a single reason why he shouldn't have." One day during his round a donkey brayed outside; "Ha," said Beddard, with the twinkle that always accompanied these wise-cracks, "a rival concern, don't you know" No student dared miss a word of his teaching lest he miss a yarn that would become a classic But his success as a teacher did not depend only on his personality and original presentation, for his knowledge of the fundamentals of medicine was profound.

Beneath Beddard's brusque manner was a kindliness and capacity for friendship which endeared him to all who penetrated his armour. His care of his patients was exemplary The qualities that most impressed a doctor who was under his care during the last war were his amazing thoroughness joined to a truly scientific outlook. "His scorn of scamped work was notorious," he writes, "and it was characteristic of the man that he took little care to conceal it, even when prudence might have counselled reticence" W. R R recalls his skill as an after-dinner speaker "I am asked to reply for the hospital," he said "That may seem a large order but it is nothing to me. once at Cambridge I replied for the universe." He was a distinguished mason, and the ritual has probably never been more perfectly interpreted than during his mastership He contributed occasionally to the medical journals, and to Pembrey and Ritchie's "General Pathology" and Allbutt's "System." but on the whole he wrote little His critical faculties overcame his creative, and he felt all the time that his conclusions would soon need revision He was, however, entirely in his element as chairman of the Pharmacopœia Commission 'He was largely responsible," writes

Dr C H Hampshire, "for the policy of developing the Pharmacopœia as a book of standards, while still retaining in it those features which are necessary to the maintenance of its position as an authoritative guide to the medical profession in the selection and use of drugs For nearly four years the commission met weekly to deal with reports, comments and criticisms Beddard's charm of manner and qualities of leadership made him the ideal chairman, he had great patience, allowing difficult problems to solve themselves in friendly discussion In private he gave unsparingly of his time and thought to the detailed work When the sixth British Pharmacopœia was published in 1932 it could truly be said that he was prepared to take personal responsibility for every statement made in it"

Dr Beddard married Lord Allerton's daughter Evelyn, and he leaves a son and a daughter

Mr PERCIVAL DILLON WARBURTON, who died on Nov 8 at the age of 54, was one of the best-known ophthalmic surgeons in the west of England He was educated at Wesley College, Sheffield and Sheffield University, and held numerous house appointments at the Royal Infirmary there He served in the R A M C in the last war, and afterwards settled in Exeter, where he became assistant surgeon to the West of England Eye Infirmary, being raised to the full staff in 1932 He formed a link between North and South Devon, for he also practised at Barnstaple and was consulting ophthalmic surgeon to the Okehampton cottage hospital He had suffered from diabetes for some ten years before his death

MEDICAL NEWS

Royal College of Surgeons of England

A meeting of the council was held on Nov 9 with Mr Hugh Lett, the president in the chair Mr R St Leger Brockman (Sheffield) was readmitted to the court of examiners for a period of five years It was decided to hold an additional final fellowship examination in February 1940 The council recognises that it may be difficult for some candidates to comply with the regulations for admission to the final fellowship examination It has been resolved therefore that those candidates who because of war work have been unable to comply with the regulation that requires six months' residence as house surgeon in a recognised hospital may apply to the president, through the director of examinations for special permission to enter for the examination With his application a candidate must submit a certificate from his commanding officer giving (a) particulars of his appointment in the Navy, Army, or Air Force; (b) the dates of his service with the unit, and (c) an indication of the nature of the duties performed by him during such service A candidate in the Emergency Medical Service or in a civil hospital should furnish similar particulars signed by the senior surgeon of the hospital in which he may have held the appointment

Provisional recognition was granted to the dental faculty of the Punjab University so that graduates of the faculty may be admitted to the final examination for the licence in dental surgery on completing six months' general medical and surgical hospital practice in this country

Diplomas of membership were granted to the candidates named as receiving the licence of the Royal College of Physicians in our issue of Nov 4 and to P J Crowley, A M Goldthorpe Joyce S Miller, and Aileen F M Whetnall

Further Nobel Awards

The 1939 Nobel prize for chemistry has been divided between Prof Adolph Butenandt, director of the Kaiser Wilhelm Institute for Biochemistry in Berlin for his work on sex hormones and Prof Leopold Ruzicka (Zurich) for his work on polymethylenes and the higher terpene compounds The 1938 prize has been awarded to Prof Richard Kuhn (Heidelberg) for his work on carotenoids and vitamins.

The Nobel prize for physics for 1939 has been awarded to Prof E O Lawrence (Berkeley California) for his invention of the cyclotron Last year the Science Museum at South Kensington acquired an example of this apparatus on loan from Professor Lawrence and it was described in our columns (*Lancet* 1938, 2 859)

Australasian Medical Congress

The sixth Australasian Medical Congress (British Medical Association) which was to have been held in Perth next September has been postponed indefinitely

University of Sheffield

Dr J B H Holroyd has been appointed temporary lecturer in anæsthetics while Dr R E Pleasance is on military service, and Mr James Hardman temporary honorary lecturer in surgical anatomy while Mr J C Anderson is on military service Dr W F Mindham has been appointed part time demonstrator in anatomy

In the faculty of medicine the following external examiners have been appointed Prof R D Lockhart (anatomy), Prof R J S McDowall (physiology), Dr H L Tidy (medicine and therapeutics) Mr E Rock Carling (surgery), Prof W W C Topley, F R S (pathology and bacteriology), Prof W J Dilling (pharmacology) Prof A L Robinson (obstetrics and gynæcology), Prof J Glaister (forensic medicine), and Prof H T Humphreys (dental subjects)

The committee of management of the Sheffield Hospitals Council (Inc) will include the junior pro chancellor, the vice chancellor Prof H N Green, M D, Mr Albert Harland, and Prof E J Wayne, F R C P

University of Glasgow

On Nov 11 the degree of M D with commendation was conferred on P K Fraser (*in absentia*)

Royal Faculty of Physicians and Surgeons of Glasgow

At the annual meeting of the faculty held on Nov 6 the following were appointed office bearers for the ensuing year president, Dr J Souttar McKendrick; visitor, Mr Roy F Young hon treasurer, Mr William J Richard, hon librarian Dr W R Snodgrass, representative to the General Medical Council Mr G H Edington other councillors Mr J Douglas Brownlie, Mr J Scouler Buchanan, Dr Carstairs C Douglas, Mr Donald Duff Dr John Henderson, Mr A. J Hutton, Dr A. Brown Kelly

Royal College of Physicians of Edinburgh

A quarterly meeting of the college was held on Nov 7 with Dr Alexander Goodall, the president, in the chair Dr David Dowie Dunn (Cape Town), Dr Jiwan Ram Malern (Punjab, India) Dr Beatrice Annie Sybil Russell (Colonial Medical Service Gold Coast) Dr George Robertson McNab (Birmingham) Dr Philip Wolfe Mcbray (Bath), Dr Robert Patrick Anderson Macaulay (Trentham Staffs) and Dr Harry Winton Dryerre (Edinburgh) were elected to the fellowship of the college

Medico-Legal Society

The ordinary meetings of this society will be suspended for the time being The annual dinner which was to have been held in December has been cancelled The publication of the *Medico-Legal and Criminological Review* will be continued at any rate till the end of 1940

Royal Society

A royal medal has been awarded by this society to Prof David Keilin, F.R S, Quick professor of biology in the University of Cambridge, for his contributions to biochemistry and entomology.

Royal Society of Arts

On Wednesday, Nov. 22 at 2 30 P M, Sir Leonard Hill, F R.S, will read a paper to this society on the penetration of rays through the skin and radiant energy in the treatment of wounds. Applications for tickets should be made to the secretary of the society, John Street, Adelphi, London, W.C.2.

Maida Vale Hospital for Nervous Diseases

The outpatient department of this hospital is open daily at 9 30 A.M The time was incorrectly given in our last issue.

Course in Tropical Medicine

A six-week course in tropical medicine and hygiene will begin on Monday, Jan 8, at 10 A M at the London School of Hygiene Although certificates of attendance will be given, this course will not in any way qualify for admission to the examination for the diploma in tropical medicine and hygiene. Arrangements have been made to transfer teaching to the school's branch institute at St Albans, if war conditions should make this necessary Similar courses will be held from time to time during the year should sufficient applications for admission be received. Inquiries should be addressed to the secretary of the school, Keppel Street, London, W.C 1.

Central London Throat, Nose and Ear Hospital

To avoid blackout and rush-hour travelling for patients it has been arranged for the outpatient department of this hospital to be open every day from 9 30 A.M. to noon as well as at the usual time of 1 P M to 3 30 P.M

The League of Nations and the Drug Traffic

The work of the League of Nations has been overshadowed and interrupted by the outbreak of war. At the instigation of the British Government the meetings of the council and assembly, which were due to be held on Sept 11, were postponed sine die, owing to the impossibility of securing attendance of members at Geneva. Nevertheless a meeting of the Opium Supervisory Body, set up under the Limitation Convention of 1931, held its fifteenth session from Sept 5 to 7. The Permanent Central Opium Board also has not suspended operations It met on Aug. 24 and transacted ordinary routine business, and, in particular, received a report from the Portuguese government on the unsatisfactory narcotic situation in Macao It was understood that the Portuguese government, as requested by the board, were inquiring into the allegations that had been made The board has resolved to hold a further meeting shortly when it is hoped the inquiry will have been completed. The president of the board is Sir Atul Chatterjee (India), the vice-president is Mr. Herbert L. May (American), and the other members are M Salahaddin (Turkish), Sir Malcolm Delevingne (British), Judge Michael Hansson (Norwegian), M. Deagan Milićević (Yugo-Slavian), and Prof M. Tiffeneau (French). A conference which the council of the League had directed to be held on Oct. 2 of states parties to the 1931 Limitation Convention had to be postponed, as the council had prescribed that it should meet during a session of the assembly of the League The object of the conference was further to consider the oft-discussed question of extending to dihydrocodeine and its salts certain provisions of the Limitation Convention of 1931 for regulating the manufacture and distribution of codeine preparations The supervisory body in its September session had the satisfaction of noting that estimates of the several scheduled drugs required for the following year had been received in respect of 51 countries and 90 territories—a total of 141 estimates against 109 estimates received in the corresponding session of the previous year. It is, of course, on these estimates that the limits of legitimate manufacture of the drugs in question and of the world consumption are based.

Royal Northern Hospital

Civilian patients can be received into the wards of this hospital, and the outpatient department is open daily at 9 A.M. and 1 P M. (Saturdays 9 A.M) Casualties and urgent cases are admitted at all times of the day and night.

American Research Fellowship

The Women's Medical Association of New York offers a Mary Putnam Jacobi fellowship to any woman doctor, either American or foreign to carry on or complete some special problem in medical research Applications for the fellowship should be sent by March 1, 1940, to the Secretary of the fellowship committee, Dr Phebe L. Dubois, 150 East 73rd Street, New York City, from whom further information may be had

Standard Hæmoglobinometers

In March this year the British Standards Institution circulated for comment a draft specification for British standard hæmoglobinometers. The draft was based on the carboxyhæmoglobin (Haldane) method As a result the institution has received requests that an acid-hæmatin (Sahli) method, not involving the use of coal gas or carbon monoxide, should also be standardised Before going on with the additional standardisation the institution wants further information and has, therefore, circulated a memorandum on the subject to medical organisations and doctors known to be interested. Copies can be obtained on application to the Director, British Standards Institution, 28, Victoria Street, London, S.W.1.

Physical Exercises Broadcast

An experimental series of physical exercise broadcasts will begin on Monday Dec. 4. Each broadcast will be of ten minutes' duration, starting at 7 35 A M daily, except on Sundays On Monday, Wednesday, and Friday, a male instructor will direct the exercises at the microphone for men, while on Tuesday, Thursday, and Saturday, a woman instructor will broadcast exercises suitable for women listeners In each case the exercises will be designed for listeners aged under forty years If the experiment proves successful, a series of broadcasts for the "over forties" may be introduced later

The exercises will be suitable for listeners who have little space in their homes, and no expensive equipment will be necessary.

Royal College of Physicians and Surgeons of Canada

Dr Wilder Penfield, director of the Montreal Neurological Institute, formerly a Rhodes' scholar at Merton College, Oxford, was elected president of the college at its recent annual meeting

Hospital Amalgamation in Bristol

The Charity Commissioners have consented to a scheme for the amalgamation of the Royal Infirmary and the General Hospital A working agreement has been arrived at for pooling finances and for having one committee and one medical staff Work continues in both hospitals, but as occasion arises single special departments will be substituted for the two previously existing. Steps are also being taken to establish one comprehensive contributory scheme for the whole of Bristol. At present several small schemes exist, but it would be a manifest advantage if all these were combined

Board of Control

The headquarters of the Board of Control (Lunacy and Mental Deficiency) is now at Lytham St Annes

---

". . . 'We have had twenty years of experience reëmploying our tuberculous workers. We are quite happy with our results As for the question of attendance records of these recovered cases, we made a check up a few years ago and found, as we have on previous occasions, that the average attendance record of the recovered tuberculous group as related to sickness absence was better than the average of the whole body of employees' . . . from the medical director of a company employing over 40,000."—Quoted by E. HOCHHAUSER, *Amer. Rev. Tuberc* Oct. 1939.

NOTES, COMMENTS AND ABSTRACTS

STATISTICS OF THE LONDON VOLUNTARY HOSPITALS

THE annual statistical summary of the work and finance of the London Voluntary hospitals in 1938, issued by King Edward's Hospital Fund for London,[1] covers the activities of 146 hospitals containing nearly 19,000 beds During the year nearly 300,000 new inpatients were admitted and each occupied a bed for an average period of 19 days, some two million new outpatients made ten million attendances The cost of medical treatment on this vast scale was £4,832,115 (an increase of £278,000 over 1937) and the income to meet it £4,685,537, leaving a deficit of nearly £147,000 *The detailed returns show that 63 hospitals secured* more income than was expended while 83 had a deficit Much of the increased expenditure is reported to be due to the continued rise in the use of special and costly treatments—in the number of operations, of clinical investigations, of X-ray examinations, of expensive drugs and the greatly increased use of special diets The statistics given for the individual hospitals enable comparisons to be made between those of similar type and should help committees to make check ups on their expenditure The total cost per occupied bed for all the 146 hospitals was £227, and for each thousand attendances of outpatients £110 The former figure is composed of £37 8 for provisions, £20 1 for surgery and dispensary, £12 5 for domestic needs (bedding, laundry, fuel and lighting, &c), £83 6 for salaries and wages, £10 3 for administration, £10·7 for renewals and repairs to building and plant, £15 5 for interest, appeals, rents, rates and taxes, and £6·4 for miscellaneous needs

CANNED FOOD

Dr Pangloss writes In his article on canned foods (*Lancet*, Nov 4, 1939, p 991) Sir William Savage considered their nutritive value and possible contaminations, but he did not touch on the æsthetic side—the retention of palatability With sardines, this is enhanced by the tin, Mr André Simon has described a "most incredible luncheon" consumed in 1933 The first item was "vintage sardines, 1908, 1910, 1927", of it he wrote "I had never dreamt that sardines were at their best in their tin, but they appear to be, provided always that the oil is the best oil, and that you do not forget to turn them over regularly so that the oil is kept moving"

An earlier experiment was related by Dr A S Taylor in his evidence before the food committee of the Royal Society of Arts in 1861 H M S *Blonde* had sailed for the Sandwich Islands in 1826 with tinned provisions, some of which were opened in his laboratory at Guy's Hospital twenty years later and found to be in a good state of preservation

EPANUTIN AND THE GUMS

EARLY this year Kimball[2] observed hyperplasia of the gums as a complication during the treatment of epilepsy with sodium diphenyl hydantoinate (Epanutin) He noted that, though its severity seemed to vary inversely with the amount of ascorbic acid in the blood, the administration of ascorbic acid or of a diet rich in vitamin C did not reduce its incidence In recording a series of 76 chronic cases treated in mental hospitals, Blair and his colleagues[3] say that the hospital dentist could find sponginess of the gums in only 2 cases in which it could in any way be attributed to the epanutin given Steel and Smith[4] noted painful and tender gums in some of their patients, but Williams[5] found no such complication in 91 epileptics treated with epanutin Hyperplasia of the gums was observed by McCartan and Carson[6] in 1 case out of 10 Frost[7] gave some of his patients a preliminary course of vitamin C and did not report any lesion of the gums, but he drew attention to a new toxic manifestation—epistaxis associated with a raised blood-pressure—in 2 patients who had received a course of vitamin C *Pratt*[8] *had all his patients* examined by the dentist especially for hyperplasia of the gums, with the result that a mild degree of it was found in nearly half of them Thereupon a similar examination was made of 52 other patients in the same cottages and wards who were on other treatment, and the dentist's findings were almost the same

THE EUNUCH LOTUS BLOSSOM

Mr Lancing[9] has attempted to use the novel as the medium for presenting Chinese history to western eyes His story is about the early life of Tsu Hsi, the late Empress Dowager of China Infinite plans have been taken to provide an accurate and detailed picture of the Chinese court, but the resulting insistence on details of architecture, topography and court etiquette slows action to a point wellnigh stoppage The Chinese court has had few rivals in magnificence, pomp and cruelty, and Mr Lancing does not spare us the intimate details of the concubines and eunuchs In his hero Lotus Blossom, a court eunuch, the author has attempted a psychological study of the condition, but the *attempt is not at all satisfying*

FOILLE

WE have received a brochure on this substance which is manufactured by the Carbisulphoil Company, Dallas, Texas, U S A The distributors for this country are the Anglo-French Drug Company Limited 12, Guilford Street, London, W C 1 Foille (pronounced "foil") is described as a stabilised water-in-oil emulsion, containing alcohol, benzocaine, oxyquinoline base, phenol, and some salts and soaps in a vegetable-oil vehicle It is used in the treatment of burns, whether recent or late and infected It is applied to the burn with a camel hair brush, without any attempt at previous cleansing of the injured area, light gauze is then put on and saturated with foille After 18 hours the gauze is removed and direct applications of the substance are again made at frequent intervals The area is kept exposed to the air under a heating cage Apparently foille forms a soft moist yellow crust and is said to coagulate serum protein The epithelium grows from the edges underneath the crust as in the coagulation treatment of burns The free mobility of the soft crust is claimed as an advantage over the more rigid coagulum of the present accepted treatment In infected burns treatment is carried out in a similar way although before applying foille the infected area should be treated by moist dressings or saline baths Foille can also be used in the treatment of traumatic wounds Several advantages are claimed for it—the control of pain and shock, the prevention of infection and the hastening of healing The substance can be used with safety on quite a large burn in spite of its phenol content (2 8 per cent.)

---

[1] Statistical summary of the income expenditure, work and costs of 146 London hospitals for the year 1938 October 1939 Pp 94 1s

[2] Kimball, O P J Amer med Ass 1939 110 1244 cited in Lancet 1939 1 10[illegible]

[3] Blair D Bailey, K C, and McGregor J S, *Lancet* Aug 5 1939 p 363

[4] Steel J P and Smith L S, *Ibid* p 367

[5] Williams D *Ibid*, Sept 23 1939 p 678

[6] McCartan, W and Carson J, *J ment Sci* September 1939 p 965

[7] Frost I *Ibid*, p 976; see *Lancet*, July 29 1939 2 264

[8] Pratt C H *J ment Sci* September 1939 p [illegible]

[9] Lotus Blossom By George Lancing London: Robert Hale 1939 Pp 336 8s

THE FINAL CONJOINT

A GROUP of London medical students, who failed to enclose their names so that their letter could be authenticated, write: In Britain one expects fair play even from examiners, so it is with incredulous amazement that we have received the notification of the reintroduction of pathology and bacteriology in the final conjoint examination for those who will be taking it after December this year. This measure is both unjust and cruel: for those who are exempted from it have had ample time and opportunity to complete their pathology course in the normal course of events and under the best teaching conditions obtainable at their medical schools, while those unhappy wretches who will have to take the examination in March and after have had their studies brutally interrupted by the calamity of war, and are not placed under conditions suitable for the study of pathology, which after all is mostly of academical and theoretical interest only. Although we realise that there has been much disorganisation and rearrangement of examining bodies, it is rather disconcerting to find the Conjoint Board in that same state of undecided wavering which has become a by-word in civil life today.

BED-WETTING

THE National Baby Week Council has issued a useful leaflet on bed-wetting for the guidance of parents and the acting parents of evacuated children. Among other simple measures it recommends a matter-of-fact and encouraging view of the trouble; mental and physical calm between tea and bed-time; ample total fluids, for a concentrated urine is irritating, but the last drink of the day half-an-hour before tea; an airy bedroom and light bedclothes; and a regular bowel action without strong purges Leaflets can be obtained free from the council at 29, Gordon Square, London, W.C 1.

THE DOCTOR'S PETROL —We are asked to remind doctors applying for supplementary rations of petrol that they will cause delay unless they send (1) their registration book and (2) a properly filled application form.

Appointments

ARMSTRONG, C N, M D, B Hy, M R C P, D.P H, hon. physician to the Royal Victoria Infirmary, Newcastle-on-Tyne

LEADER, R A, L R.C P, D P.H, deputy medical officer of health for South Shields

Examining Surgeons under the Factories Act, 1937: Dr A H MACGREGOR MCMULLAN (Shipston-on-Stour district, Warwickshire), Dr A N. BOUSFIELD (Wooler district, Northumberland)

Colonial Medical Service —The following appointments and promotions are announced

- BALDWIN, R B T, M R C S, medical officer, Nigeria,
- CARNEGIE, A L DE P, M B, medical officer Jamaica,
- STARTUP, C W, Ph D, professor of physiology and registrar of Medical College Ceylon,
- HARKNESS, J W P, M B Glasg, D P H, director of medical services, Gold Coast,
- POYNTON, J O, B Chir. Camb, pathologist, Institute for Medical Research, Federated Malay States,
- WEBB, W. L, M B Lond, D P H, senior medical officer, St Vincent

Vacancies

Bexhill on-Sea Bexhill Hosp —Res M O at rate of £150
Birmingham, Royal Cripples Hosp —Res H S, at rate of £200
Burnley Co Boro —Jun R M O, £150
Cambridge, Addenbrooke's Hosp —H P, at rate of £130. Also res anæsthetist and emergency officer, at rate of £130
Cardiff King Edward VII Welsh National Memorial Assn —Area asst tub O, £500
Cardiff, King Edward VII Welsh National Memorial Assn —Asst res M O for North Wales Sanatorium, £200
Chester Royal Infirmary —H P, H S and H S to Orthopædic Dept, £150
Chichester Royal West Sussex Hospital —J.H S at rate of £125
Chorley Lancs Chorley and District Hosp —H S at rate of £150
Durham County Council —Asst welfare M O, £600
Hampshire —Asst co M O H £733
Kent Education Committee —Dental surgeon, £500
Lancashire C C —Asst. co M O H, £800
Lincoln City —Deputy M O H, £600
Manchester, Saint Mary's Hosps, Whitworth Park —Hon. surgeon for children
Manchester, Royal Children's Hosp, Pendlebury —Res M O, at rate of £150
Manchester Royal Infirmary —Chief asst to Orthopædic Unit, £250.
Manchester, Withington Hosp —Two res. asst M O's, each at rate of £200
National Hosp for Diseases of the Nervous System, Queen Square, W C 1 —Registrar, £200
Nelson Hosp, Merton, S W 20 —Res H S, at rate of £150
Newcastle Gen. Hospital —R S O., £550.
Nottingham Children's Hosp —Res H S, at rate of £150
Nottingham City —Asst M.O H, £500
Oswestry, Robt Jones and Agnes Hunt Orthopædic Hospital —H S at rate of £200
Plymouth, Prince of Wales's Hosp, Greenbank Road —Res surg O, at rate of £225 Also sen. H S for Devonport Section, at rate of £130
Princess Beatrice Hospital, Earl's Court, S.W 5 —Two R M O's
Richmond, Royal Hospital —J H S, £100.
Samaritan Free Hosp for Women, Marylebone Road, N W 1 —H S, at rate of £100
Sheffield Royal Infirmary and Hosp —Asst cas O, at rate of £80.
Staffordshire C C —Temporary asst M O, £600
Stoke-on-Trent, North Staffordshire Royal Infirmary —Res surg O, £350

The Chief Inspector of Factories announces a vacancy for an examining surgeon at Littlehampton, Sussex

Medical Diary

Week beginning November 20

BRITISH POSTGRADUATE MEDICAL SCHOOL

DAILY
10 A M –4 P M, Medical clinics, surgical clinics and operations; obstetrical and gynæcological clinics and operations 1 30–2 P M, postmortem demonstration.

TUESDAY
2 30 P.M, Lord Horder Theatre clinic.

WEDNESDAY
11 30 A.M, Clinical-pathological conference (medical) 2 30 P M, Clinical-pathological conference (surgical).

THURSDAY
2–4 P M, Dr Duncan White: Radiological conference.

FRIDAY
2 P M, Clinical-pathological conference (gynæcological)

ROYAL SOCIETY OF MEDICINE, 1, WIMPOLE STREET, W 1.

WEDNESDAY
Surgery, 2 30 P M, Dr J Trueta The Treatment of War Fractures by the Closed Method.

ROYAL SOCIETY OF ARTS, JOHN STREET, W C 2

WEDNESDAY —2 30 P.M., Sir Leonard Hill, F R S The Penetration of Rays through the Skin and Radiant Energy for the Treatment of Wounds.

Births, Marriages and Deaths

BIRTHS

BOYLE —On Nov. 7, at Nairobi, Kenya, the wife of Dr. William Boyle—a son

HUNT —At Ahmednagar, India, the wife of Captain R S Hunt, R A M C —a son

MILLIS —On Nov 8, at Hawkhurst, Kent, the wife of Dr. G C Millis—a daughter

O'ROURKE.—On Nov 2, the wife of Dr H C. O'Rourke, of Greenford, Middlesex—a son.

STOTT —On Nov 9, in Oxford, the wife of Dr N K Stott of Chobham—a daughter.

MARRIAGES

ADENEY—ANDERSON —On Nov. 3, in Perth, Harold Walter Adeney, M B, to Isabella McDonald Anderson, M B

CRUDEN—FURSIER —On Nov 6, at Stoke Bishop, William Victor Cruden, M.R C S, to Pansy Bernice Emilie Fursier

SCOTT—BOOTH —On Nov 7, at Haifa Palestine, Captain William Antony McDonald Scott, R A M C, to Marjorie Edith Booth, of Durban, Natal

STEWART-WALLACE—SCHOOLING —On Nov. 4, Arthur Maurice Stewart-Wallace, M D, to Helen Mary Schooling

DEATHS

BEDDARD —On Nov. 8 at Sandiway, Cheshire, Arthur Philip Beddard, M.D Camb, F R C P., of Harley House, N W 1

BUTTERS —On Nov. 9, at Bedford, George Butters, M B Edin, aged 75

CAMPBELL.—On Nov 3, at Allandale, Northumberland, L Mabel Campbell, M B St And

CUNNINGHAM —On Nov 10, at Hove, Francis William Murray Cunningham, D S O, M D Edin, F R C P.E., aged 65

EDDEN —On Nov 10, in Delhi Major John Alfred Wylde Edden, M D, M S Lond, F R.C S, I M S, chief medical officer, Delhi aged 48

PARKE —On Nov 13, at Westcliff on Sea, Charles James Parke, M R C S, aged 84

ADDRESSES AND ORIGINAL ARTICLES

TREATMENT OF BURNS AND SCALDS IN CHILDREN

By Wallace M Dennison, M B Glasg, F R C S E
ASSISTANT TO THE VISITING SURGEON AT THE ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW

The modern treatment of burns and scalds dates from 1925, when Davidson introduced tannic acid as an external application He enumerated its advantages thus it lessens toxæmia, is analgesic, limits secondary infection, minimises trauma, conserves body fluids, and forms a scaffold for the growth of young epithelial cells All these statements (Davidson 1925, 1926, Davidson and Matthew 1927) remain unchallenged today The important principle of Davidson's method is not tannic acid per se but coagulation, and satisfactory results have been claimed for other coagulants During the past five years these methods have been investigated in the Royal Hospital for Sick Children, Glasgow

Seegor (1932) recommended the addition of sodium carbonate to the tannic acid, to bring the hydrogen ion concentration approximately to 7 Ferguson (1933), in a series of cases in this hospital, found no advantages from the use of this solution Gentian violet and other dyes coagulate proteins slowly (Aldrich 1937), but in children this coagulum has not been found adequate to prevent toxæmia Silver nitrate alone (Shillito 1929) produces a coagulum which is too hard, but used together with tannic acid (Bettman 1935) it leads to a very satisfactory eschar Black ink (gallotannate of iron) has been used with success in small burns in outpatients (Stammel 1929) Coan (1936) described in detail the use of ferric chloride as a coagulant In our series a satisfactory coagulum was obtained in all cases when the tincture was used in the fresh state Precipitation in the solution developed within a few days, however, and the supernatant fluid did not form such a satisfactory coagulum Mercurochrome (Turner 1936) was tried, but the resultant coagulum was too thin

From 1932 to 1934 I saw many examples of the toxic erythematous rash which can be produced by picric acid, and I have hesitated to use it even as a first aid measure on children Cold tea has given a satisfactory coagulum in a small series of cases and I suggest that this is probably the best first aid remedy for use in every home

We have used tannic acid in strengths ranging from 2½ per cent (Mitchiner 1933) to 20 per cent (Wilson 1935, 1936) solutions The weaker solutions have been abandoned owing to the length of time required to produce a satisfactory coagulum This is an extremely important factor in infants and children For the past eighteen months the 20 per cent solution has been discarded in favour of the Bettman technique, for the eschar formed was too thick and tended to crack Post mortem sections of the coagulum and underlying tissues have shown that there is no difference in depth of penetration with different concentrations of tannic acid The tannic acid has always been made freshly as required, and during the last two years no antiseptics have been added to the solution

The many tannic acid jellies and creams on the market have proved satisfactory in many cases, Messrs Reckett and Sons have supplied us with their Dettol Burn Cream No 4 (tannic acid, tragacanth, and dettol), and this preparation is now constantly used for burns of the face Owing to its flexibility, this cream is useful when the injury is situated at flexures, and it is used routinely for "patching up" cracks which appear in the coagulum formed by the tannic acid and silver nitrate Owing to the rapidity of coagulation the application of tannic acid together with silver nitrate has been used as the routine method of treatment in one surgical unit in this hospital for the past eighteen months This method has proved satisfactory in all respects

Cod liver oil (Steel 1935), like other oily dressings, produces no coagulation of the damaged surface and so allows the development of secondary shock and toxæmia It is never used in this unit as a primary form of treatment, although it has its place during the stage of healing

CLINICAL STAGES AND THEIR TREATMENT

The most satisfactory classification of the course of an extensive burn or scald is that suggested by Wilson (1929) (1) primary shock, (2) secondary shock, (3) toxæmia, (4) sepsis, and (5) healing

Primary shock —There is general agreement that primary shock is due to a vasomotor upset resulting from nervous impulses from the injured area The condition is readily assessed by the appearance of the child, but careful control is kept by frequent blood pressure readings In this hospital, however, primary shock is rarely seen, for it tends to pass off before admission If present, the condition responds rapidly to the usual treatment for shock—sedatives, warmth, and, if necessary, fluids Mourgue-Molines (1937) has emphasised the importance of the treatment of the patient's general condition, as opposed to the treatment of the damaged surface In children this does not hold to the same extent as in adults, generally speaking, local treatment of the injury must be instituted soon after admission

Secondary shock —There has been much controversy concerning the ætiology of secondary shock (Cannon and Bayliss 1919) In burns the principal feature is the diminution in active blood volume (Blalock 1930) apparently due to loss of plasma, but the mechanism producing this loss is still a matter of conjecture The most outstanding clinical manifestations are the falling blood pressure and the intense thirst which children often exhibit The other signs of secondary shock do not require description here

It has been estimated (Mitchiner 1935) that in a man of 10 st with a sixth of the body surface burnt 3500 c cm of serum will be lost from a total blood volume of 5000 c cm within twelve hours of the injury The effect of a proportionate loss in a child can be readily understood The aim of treatment therefore is to stop the outpouring of fluid by coagulation of the injured surface and to replace lost fluids Unfortunately primary shock may merge insidiously into secondary shock and secondary shock into toxæmia It is impossible to draw a hard and fast line between the three phases, but for the purposes of treatment an arbitrary demarcation is made Primary shock has usually passed off within two hours of injury under appropriate treatment, if the blood pressure continues to fall in spite of treatment, treatment for secondary shock is instituted Toxæmia is rarely present under six hours and is usually manifested by a rising temperature

During the cleansing preparatory to coagulation of the injured surface there is often a further fall in blood-pressure. This is much greater when the cleansing is done without a general anæsthetic, although we have tried the sedative effect of most of the recommended drugs. If the child is too ill to stand gas-and-oxygen anæsthesia, coagulation without preliminary cleansing should be carried out while the patient remains in bed, gauze wrung out of tannic acid being applied and allowed to dry. Adequate cleansing and recoagulation takes place when the general condition of the patient has improved.

If shock is severe, lost fluids are replaced by an intravenous injection of a 6 per cent. solution of gum saline, but we have not found this to be necessary as a routine method in the treatment of burns and scalds. Most children can retain fluids given orally and per rectum. Young children will drink saline without showing disapproval, whereas in older children even flavoured salines are not tolerated when given by mouth.

There are no constant changes in blood chemistry during this phase, and post mortem no constant typical findings have been observed.

Toxæmia is by far the commonest cause of death from burns and scalds in childhood. Although it is usually most severe in extensive injuries, I have seen severe toxæmia arising when the damaged area measured only 6 sq. in. Every burn or scald, no matter how trivial it may appear, subjects the child to a real risk of toxæmia. We have no certain knowledge of the sources or constitution of the toxic substance (Wilson et al. 1938), but we do know that it has serious effects on the liver, that it alters the blood chemistry in a way that suggests damage to the suprarenal cortex, and that animal experiments suggest that the hypothalamus is gravely affected. Post mortem there are no obvious constant changes in the suprarenal bodies, but there is a striking and characteristic central-zone necrosis of the liver lobules. Unfortunately all experimental and biochemical investigations have been temporarily abandoned, but it is essential to pursue the study of this, the most important remaining problem of burns.

In the early stages toxæmia is not always easy to recognise, but at any time from six hours to six days after injury the signs and symptoms, which are often only too typical, may arise. The commonest features are sustained pyrexia, restlessness, a rapid pulse-rate and a rapid respiration-rate (closely simulating pneumonia), pallor (often greyish or cyanotic), vomiting (often bloodstained), delirium, convulsions, and finally coma and death. Usually the blood-pressure does not fall until the condition is well established. In this series death from toxæmia has taken place at periods varying from eighteen hours to seven days after injury.

Treatment is directed to (1) the coagulum, (2) support of the liver, and (3) the apparent suprarenal insufficiency. Toxæmia may develop if even a small area of the coagulum becomes moist, and with only a mild degree of sepsis present the outlook is much more grave (Aldrich 1937). The coagulum is carefully inspected at short intervals, and doubtful areas are dehydrated with ether and painted with a 1 per cent. solution of gentian violet in spirit (Weaver 1934). If necessary, the area is retanned. We have ceased to use the tannic-acid "compress" except as an emergency measure (in severe secondary shock). With this method the coagulum could not be seen, and areas of softening could arise unobserved, leading to toxæmia. For the same reason the practice of applying plaster-of-paris over the coagulum has been abandoned.

To support the liver, a 10 per cent. solution of dextrose saline is administered intravenously, usually by the drip method. Careful watch must be kept over the fluid intake and output, for there is a real danger of waterlogging the patient (Glover 1932).

The results of the investigations into the changes in serum sodium and potassium are not sufficiently conclusive to permit any definite statements at present. The changes, as in Addison's disease, suggest suprarenal insufficiency, and therapeutic measures are directed towards reversing these changes.

With Eucortone (Wilson et al. 1936) we obtained gratifying and unexpected recovery in several cases of established toxæmia. In July, 1939, Wilson suggested the use of synthetic cortical extracts, and we have used desoxycorticosterone acetate during the past three months successfully in 8 cases of established toxæmia. A very definite clinical improvement took place coincidentally with the administration of the drug. In 1 case there was no response; the child had bronchopneumonia on admission and died of severe toxæmia 130 hours after the injury. Desoxycorticosterone acetate (either D.O.C.A. or Percorten) is given in an average dose of 5 mg. intramuscularly every two hours. Like eucortone, it can also be administered intravenously by adding the contents of two or three ampoules to the reservoir of the continuous-drip apparatus.

Sepsis.—My first resident post was in the septic wards of a general hospital, and, as in many hospitals in this country, there all the burns and scalds were treated. The incidence of sepsis was high. Even in the general surgical wards of this hospital sepsis appeared at intervals in spite of all reasonable precautions. For the past year, however, we have had facilities for the isolation of scalds and burns in a side ward reserved for this purpose, and sepsis in the burnt area has ceased to exist as a serious problem.

Under ordinary conditions the invading organism is the hæmolytic streptococcus in 90 per cent. of cases. With correct treatment the organism is rarely found before the fourth or fifth day. Sepsis usually begins in areas of the coagulum which have cracked or become moist; to prevent these defects, the area is dehydrated with ether every four hours and then painted with a 1 per cent. solution of gentian violet in spirit. Should the coagulum become moist, ether and gentian violet are applied more frequently.

If it should be necessary to remove the coagulum because of underlying pus, this is done with dressings of hypertonic saline. Should hypotonic solutions be used, there is a grave danger of toxæmia developing. If pus is present, all that is usually necessary is to slit the coagulum with scissors, cleanse, dry, and recoagulate. Since the burns have been treated apart from the general surgical patients, no case has required cessation of the tannic-acid regime because of sepsis. The preservation of the coagulum (and consequently the prevention of toxæmia and sepsis) is largely a question of nursing. Children require to be firmly secured in such a manner that the coagulum is pressed upon or traumatised as little as possible. If œdema is produced in a limb by the encircling coagulum, the coagulum is incised longitudinally and dettol burn cream applied to the raw surface. This same preparation is always used in areas which tend to crack.

Since the streptococcus is the common invading organism, sulphonamides are of great value in combating gross sepsis. These drugs were given prophylactically as a routine for several months, but, since there is considerable doubt as to the value of this treatment, it has now been abandoned. The fact that several days have elapsed since the injury is no contra-indication to coagulation therapy. Several children have been admitted to hospital a week after being scalded, showing hyperpyrexia and a generalised scarlatiniform rash Coagulation therapy and the administration of sulphanilamide have led to an uneventful recovery

Healing—As a rule, the coagulum should be left until it strips off readily—usually at the end of the second week In deep burns the coagulum may take many weeks to separate, and it may be advisable to remove it, along with the underlying slough, under a general anæsthetic In second degree burns and scalds one expects to find the underlying skin soundly healed on removal of the coagulum Clean raw surfaces are treated with Trinity Ointment (eucalyptus, zinc oxide, lanoline, and soft paraffin) Desitin and cod liver oil have also been used successfully during the stage of healing The healing of large raw areas can be expedited by the use of Thiersch grafts, and whole skin grafts may be necessary at a later stage, should contractures threaten to develop By careful attention to the flexures in particular from the outset contractures should be prevented as far as possible and appropriate splintage applied

TREATMENT OF BURNS AND SCALDS

As mentioned in the preceding paragraph, the burns and scalds are now treated in a special side ward This is fitted with electric cages, and the temperature of the room is kept constant at 75° F No bed clothes touch the child, and artificial heat is supplied by the cage The temperature is carefully regulated No coverings or dressings are placed over the coagulum

An extensive burn or scald yields precedence to no other emergency or urgency of treatment There is no justification for postponing the local treatment of a scalded child while the surgeon deals with, say, two "acute abdomens" And the surgeon's duties are by no means at an end when he has completed the coagulation of the damaged area Such a case will require unremitting care and attention from the moment of admission until the coagulum begins to separate a fortnight or three weeks later Even after this time he is faced with the problems of contractures in some cases

The theatre treatment is carried out as for a major surgical operation except that the temperature of the theatre is rather above the normal level (about 80° F) The anæsthetic of choice is gas and oxygen, with often a small percentage of ether Only limited areas are dealt with at a time, for there is a rapid fall in body temperature if the child is entirely uncovered This is often associated with a fall in the blood-pressure With gauze moistened with warm saline all detached and blistered epidermis is removed, and the underlying surfaces are gently but rapidly cleansed particular attention being directed to the edges of the damaged area Soap and ether are used for cleansing only when the area is grossly contaminated or has been treated with an oily preparation before admission A 1 per cent watery solution of gentian violet is then painted over the raw surface Apart from its antiseptic and coagulating action, this solution clearly demarcates the raw area The surface is dried by a current of hot air from an electric hair drier Gauze soaked in a freshly made 5 per cent solution of tannic acid is now applied, and while still moist the area is covered with a 10 per cent solution of silver nitrate in the same manner Immediate coagulation takes place The area is again dried by hot air and a further application of a 1 per cent solution of gentian violet is made particular attention again being paid to the edges of the damaged area If necessary fluid is administered while the patient is on the operating table

On returning to the burns ward, the child is placed under an electric cage, and excessive movements are restricted by splints or bandages A sedative (usually heroin) is given No covering is placed over the coagulum Further points in treatment have been discussed in the preceding section

RESULTS OF TREATMENT

During the past five years 76 burns and 322 scalds have been treated by one unit in the Royal Hospital for Sick Children The average age of the patients was 2½ years Most of the relevant facts are included in the accompanying tables

TABLE I—CASE MORTALITY OF BURNS AND SCALDS

Year	No of cases		Deaths		Case mortality		Total case mortality
	Burns	Scalds	Burns	Scalds	Burns	Scalds	
1935	11	42	3	7	% 17 2	% 16 6	% 18 8
1936	8	39	0	8	—	20 5	17 0
1937	14	71	3	10	21 4	14 0	15 3
1938	21	81	0	8	—	9 8	7 8
1939	22	80	1	7	4 5	7 8	7 2

TABLE II—CAUSES OF DEATH FROM BURNS AND SCALDS

Year	Shock	Toxæmia	Sepsis	Pneumonia	Other causes
1935	1	4	2	3	—
1936	3	3	—	1	1 diphtheria
1937	1	9	1	1	—
1938	2	5	1	—	—
1939	1	5	1	—	1 erosion of œsophagus, &c *

*This child swallowed boiling water as well as scalding his face, chest, abdomen and thighs

TABLE III—INCIDENCE OF TOXÆMIA AND SEPSIS IN BURNS AND SCALDS

Year	Incidence of toxæmia	Percentage	Incidence of sepsis	Percentage
1937	28 cases	32 9	28 cases	32 9
1938	21 ,,	20 6	12 ,,	11 7
1939	17	15 3	7 ,	6 3

There has been a steady decrease in the case mortality during the period in question, but on considering the deaths during the past year one feels that even the present case mortality of 7 2 per cent could be lower Three of the children, I feel, could not have been saved One, a boy aged 8 swallowed boiling water besides scalding his face, chest, abdomen, and thighs Necropsy revealed severe ulceration of the œsophagus and hypostatic pneumonia An infant, aged 11 months, with a scald involving 10 per cent of the body surface developed an abscess of the thigh two days after admission The coagulum remained sound but she died of septicæmia on the thirteenth day The third child had bronchopneumonia and gastro enteritis on admission She was 17 months old and had sustained a burn involving 40 per cent of the body surface Death took place from toxæmia on the seventh day Of the five remaining deaths two children died untreated and one very inadequately treated

There has been a great increase in the number of cases admitted to the wards This is largely explained by the fact that many children are being sent from the three teaching general hospitals for treatment in the Children's Hospital.

It is difficult to compare the figures of deaths from burns with the corresponding figures for scalds. From my own experience I find that the prognosis is much better in a burn than in a scald of corresponding extent. In fact, in deep burns toxæmia (by far the commonest cause of death in childhood) is rare Severe toxæmia is to be expected in extensive superficial injuries (Lloyd 1931), probably because the damage extends only to the vascular superficial layers of the dermis. The toxins formed from the breaking down of burnt tissue is thus readily absorbed into the circulation. In deeper burns the tissues are adequately coagulated by the action of the heat, and toxæmia does not develop to the same extent.

The decrease in the incidence of toxæmia (table III) appears to be due to the constant attention given to the coagulum As regards sepsis, several factors are involved: careful cleansing in the theatre, treatment of the cleaned surface with gentian violet before "tanning," isolation of cases in burns ward, the use of sulphanilamide, and the aftercare given to the coagulum.

CONCLUSIONS

The choice of a coagulant is a matter of personal experience, and each surgeon should use the method which gives him the best results. I have given the reasons for our choice of tannic acid and silver nitrate, and until we find a superior method we will continue with our present technique

The results during the past year have completely justified the use of a side ward solely for the treatment of burns and scalds.

Desoxycorticosterone acetate has proved very valuable in the treatment of toxæmia, and I advocate its use in all cases which develop this complication of burns

SUMMARY

(1) Various coagulants used in the treatment of burns and scalds are evaluated

(2) The clinical stages and the appropriate treatment of each stage are described under primary shock, secondary shock, toxæmia, sepsis, and healing.

(3) The routine treatment is described in detail for children with burns and scalds This includes a special ward kept at a constant temperature of 75° F. and fitted with electric cages to supply artificial heat to the patient. No bed-clothes are allowed to touch the child. No coverings or dressings are placed over the coagulum. After the application of gentian violet to the cleansed area, tannic acid and silver nitrate are used together as coagulants. Local as well as general treatment must be given early.

(4) In the last five years this treatment has reduced the case-mortality from about 19 per cent. to about 7 per cent. and the incidence of toxæmia and of sepsis from about 33 per cent. to about 15 per cent. and about 6 per cent respectively

I wish to thank Mr. Matthew White, in whose unit all the cases were treated; Prof. W. C. Wilson for encouragement and advice; and the house-surgeons, sisters, and nurses, whose excellent team work has largely contributed to the improvement in our results.

REFERENCES

Aldrich R H (1933) *New Engl J. Med* 208, 299
— (1937) *Ibid* 217 911.
Bettman A G (1935) *Northwest Med* 34, 37.
Blalock, A (1930) *Arch Surg* 20 959
Cannon, W. B, and Bayliss, W. M (1919) *Spec Rep Ser med Res Coun, Lond* No 26
Coon, G L (1935) *Surg Gynec Obstet.* 61, 687.

Continued at foot of next column

MR DENNISON REFERENCES (*continued*)

Davidson, E C (1925) *Ibid*, 41, 202.
— (1926) *Amer J. Surg* 40, 114
— and Matthew, C. W (1927) *Arch Surg* 15, 265.
Ferguson, C R (1933) personal communication.
Glover, D. M (1932) *Surg. Gynec Obstet* 54, 798
Lloyd, E I (1931) *Brit med J* 2, 177
Mitchiner, P. H. (1933) *Lancet*, 1, 233
— (1935) The Modern Treatment of Burns and Scalds, London
Mourgue-Moulines, E. (1937) *Pr. méd* 45, 1121.
Seeger, S J (1932) *Surg Gynec Obstet* 55, 455
Shillito, L (1920) *Brit. med J.* 2, 668
Stammel, C A. (1929) *J. Amer. med. Ass* 93, 1161.
Steel, J. P (1935) *Lancet*, 2, 290
Turner, A C. (1935) *Brit med J* 2, 995
Weaver, D. (1934) *Calif West Med* Oct, 222
Wilson, W C (1929) *Spec Rep Ser. med Res Coun, Lond.* No 141.
— (1935) *Edinb med J.* 42, 177.
— (1936) *Practitioner*, 136, 391
— MacGregor, A. R, and Stewart, C P. (1938) *Brit J. Surg.* 25, 826
— Rowley, G. D, and Gray, N A. (1936) *Lancet*, 1, 1400

HEREDITARY FAMILIAL PURPURA SIMPLEX

By ELI DAVIS, M Sc., M D. Manc., M.R.C.P.
SENIOR ASSISTANT MEDICAL OFFICER (PHYSICIAN) TO ST STEPHEN'S (LONDON COUNTY COUNCIL) HOSPITAL

THERE is an extensive literature on hereditary tendencies to severe bleedings, but I have not found any mention of a hereditary familial purpura simplex. Recently I have seen eleven families which included several members, mostly females, who showed spontaneous ecchymoses.

Description of Families

At least one affected member of each family was observed as an inpatient for several weeks in 1938–39, except family X (see below), and followed up All members who coöperated were examined repeatedly. Pedigrees of the family were drawn up and checked where possible In all cases the husband of an affected female and his ancestry were found not to show purpura, and this side of the family is not further described There were no cousin marriages. The patients A. B, C D., E F, and G. H. described below, all housewives, were the most intensively studied members of the first four families seen They all had purpura with normal bleeding-time and coagulation-time, efficient clot-retraction, and normal values for protein and fibrinogen in the blood They showed high values for non-protein blood-nitrogen. Their blood-platelet counts were normal The capillary-resistance test was positive They showed a large bruise after the intradermal injection of moccasin snake venom (Peck, Rosenthal, and Erf 1937) within one hour. The Wassermann and Kahn reactions of the blood were negative In families V–XI some of the investigations enumerated above were not done In all families except I and IV the spontaneous ecchymoses were painless Other data and investigations are given in the table, and additional facts are recorded in the text. (Individuals marked with an asterisk were examined personally)

FAMILY I

Purpura simplex was found in three generations of a family, appearing at an earlier age in each successive generation.

A. B.,* aged 28, was admitted in June, 1938, for acute tonsillitis, from which she recovered. While she was in the ward, ecchymoses were seen on her limbs every few days. She said such "bruises" had appeared frequently during the last five years and were ½–1 in. in diameter. They had occurred in the absence of knocks or blows, and she did not bruise easily after

DATA IN MEMBERS OF FAMILIES WITH PURPURA SIMPLEX

Member	Age	Age at which ecchymoses began	Age at menopause	Red blood corpuscles (millions)	Hæmoglobin (per cent)	Colour-index	Leucocytes (thousands)	Platelets (thousands)	Capillary-resistance test
A B	28	23		(a) 4 44 (b) 4 66	80 90	0 9 0 97	7 3 12 7	175 260	+
A B 's *mother*	62	47	51					170	+
A B 's son	5	5			74			225	–
A B s daughter	7	5						250	–
C D	53	45	45	(a) 5 0 (b) 4 88	90 94	0 9 0 96	4·9 6·2	270	+
C D 's sister	52	?51	40	5·0	100	1·0	9 0	245	+
C D 's son	28	?23		5 12	102	1·0	11·0	300	+
C D 's daughter	26	24		4 0	80	1·0	9 3	310	–
E F	48	43	45	4 6	76	0 8	7 5	230	+
E F 's sister	43	41	42						+
G H	46	42	46	4 68	80	0 85	7 3	150	+
G H s daughter	24	11							–
G H s daughter	22	?12							
G H 's daughter	11	10							–
I J	43	43	43	5 6	108	0 98	17 7	230	+
I J 's mother	69	64	54						+
K L	58	55	51	5·0	92	0 92	9 0	250	+
K L 's daughter	32	24							–
M N	36	33							+
M N 's sister	42	37							+
O P	66	58	42	5 48	88	0 80	8 7		+
O P s sister	60	?	?						
Q R	43	40	43	5 61	91	0 81	7 6	250	+
Q R.'s mother	78	73	?						
S T	18	10							–
S T 's twin sister	18	10							–
U V	22	14		(a) 3 46 (b) 2 7	66	0 98	7 5 16 6	140	+
U V s mother	53	48	39						–

Differential white-cell counts were not abnormal Counts of blood-cells and platelets are per c mm

Technique of capillary resistance test a pressure of 100 mm Hg was applied to the upper arm in adults or 80 mm in children and maintained for three minutes After another three minutes the new petechiæ were counted The appearance of 20 or more petechiæ was called a positive (+) result

In *A B C D I J and G H the non protein nitrogen was* 36 32 28 and 30 mg per 100 c cm of whole blood respectively

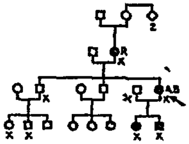
Certain other data including any abnormal blood pressures are given in the text

injuries Her mother and children also showed such "bruises" Observation confirmed her statements Ecchymoses were preceded by stiffness and aching *in the segment of the limb involved, lasting several* hours, but the pain subsided on their appearance An ecchymosis did not fade on pressure, was hardly ever raised above the surface of the skin, was bright red at first, and faded in about four days, changing through purple and brown *A B 's skin was rarely* free from petechiæ

At 11 she had had a few moderate epistaxes She had been well until the birth of her second child in 1933 In 1935 Gilliam's operation was done for retroverted uterus *Thence she had severe* menorrhagia A hysterectomy was done in November, 1938 The endometrium was hypertrophied there were numerous small cysts in the ovaries and the cervix was eroded There was no excessive bleeding at the operations or after cuts or extractions of teeth

In March, 1939, there was an attack of pain in the left leg, thigh, and abdomen, accompanied by moderate vaginal hæmorrhage, and swelling and ecchymoses in the left leg *The pain and swelling* lasted thirty six hours In May, 1939, there suddenly appeared a raised painful ecchymosis over the right side of the forehead

A. B had two children *Her daughter* had had* spontaneous ecchymoses (S E) for two years and her son* for six months Her son, but not her daughter, bruised easily (though not extensively) after pinching *or knocks The son was* further observed when admitted for tonsillectomy, and his mother's statements were confirmed There was no undue bleeding at operation The children were otherwise healthy A B 's mother* showed similar petechiæ and S E She had had epistaxes in childhood, but there was no other hæmorrhagic tendency She had had rheumatic fever at 17 She had no siblings Nothing noteworthy was known about A B 's grandparents In A B , her daughter, and her mother the blood bilirubin was normal



FAMILY I

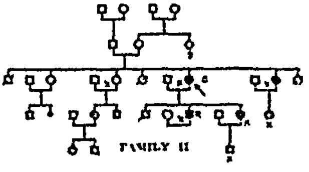
In the genealogical tables square = male, *circle = female, diamond* = sex unknown, the number below representing siblings R = associated with a history of acute rheumatism, severe prolonged "rheumatic" pains, *or rheumatoid arthritis* × = personally investigated by the author * = miscarriage or stillbirth Black symbols indicate persons with purpura Shaded symbols indicate persons who do not yet show purpura but are still too young to be declared free from the disease, Symbols intersected by an oblique stroke *indicate* children who died under 7 years of age

A. B had two brothers. The elder,* aged 36, was fit and had no abnormal bleeding His capillary-*resistance test (C R T) was negative His daughter,** elder son,* and younger son, aged 10, 8, and 5 respectively, did not bruise or bleed unduly A B 's younger brother, aged 34, and his three children were said to be normal

FAMILY II

One family showed hereditary telangiectases and hereditary purpura simplex

C D ,* aged 53, entered hospital in July, 1938, for acute appendicitis and was treated by appendicectomy *On admission ecchymoses of the legs were seen.* It was elicited that they were spontaneous, and observation showed that they were of the same type as those of family I, except that they were not preceded by pain Skin petechiæ were also present The patient had frequent epistaxes but round her nose were conspicuous telangiectases There was no tendency to other abnormal bleeding or bruising In October an unexplained œdema of the legs began clearing after six weeks



FAMILY II

C D 's son* was said to have had rheumatic fever at 4 *He had a history of occasional S E mostly* over the right knee Examination showed skin petechiæ and extensive facial telangiectases There was no history of other abnormal bleeding

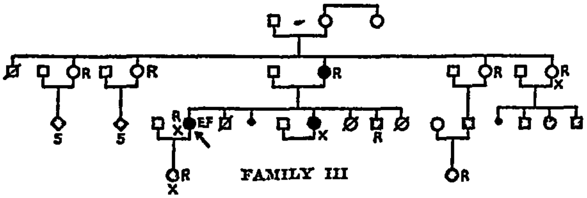
C. D.'s daughter* had had many epistaxes and occasional bleeding from conspicuous telangiectases on her face. She gave a history of S.E. and showed petechiæ. Her menstrual periods were always scanty. I was present at the birth of her first child, a male. There was no abnormal bleeding. Her baby* had a few telangiectases of the nose and occipital region from birth

Of C. D.'s sisters the eldest died at 51, and nothing abnormal regarding her or her son was known. The second sister,* aged 54, showed facial telangiectases, but there were no abnormal bleedings Her C.R.T. was positive. Her son and daughter were said to be normal. The youngest sister,* aged 52, had facial telangiectases, S E , and petechiæ. Her daughter,* aged 9, had epistaxes but was otherwise normal. C. D 's three other siblings died in infancy. Nothing relevant was known about C. D.'s parents, grandparents, aunts, and uncles.

FAMILY III

A mother and her two daughters had purpura simplex at the climacteric. The mother and her four sisters had rheumatic manifestations.

E. F ,* aged 48, was admitted in August, 1938, for erythema nodosum. She had had rheumatic pains in the limbs for years, and for six months had suffered from pains in the ankles, knees, and elbows. Her husband died from pulmonary tuberculosis twelve years ago, but repeated investigation of E F. for tuberculosis had been negative On examination E. F. had skin petechiæ, and a history was elicited of S E., which were seen subsequently. They were not preceded by pain. Menses had always been scanty. There were no other abnormal bleedings. Three siblings of E. F died in infancy.



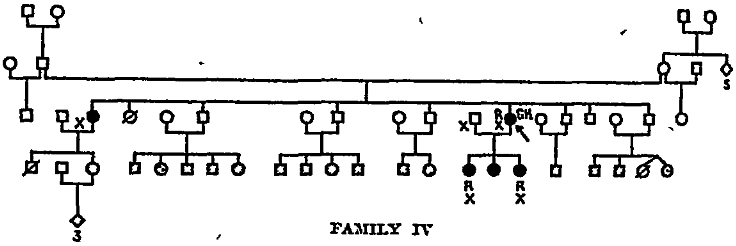
FAMILY III

E. F. had one daughter,* aged 17, who had menorrhagia and for twelve months had had pains in the legs and knees. Otherwise she was normal E. F.'s sister* had S.E. E. F.'s brother, aged 38, was not known to have any abnormal bleedings but was said to suffer from "rheumatism." E. F.'s mother died at 63 from cerebral hæmorrhage. She suffered from rheumatoid arthritis and developed masses of bruises mostly about the joints, in the absence of any injury, from the age of 51 onwards—i.e., from the time of her climacteric. Nothing relevant was known in E. F.'s father and grandparents.

E. F. had no uncles, but she had four maternal aunts. The eldest aunt, aged 73, is normal apart from "rheumatism." She had five normal children. The second aunt died at 63 in Australia. She had had rheumatic fever and no known abnormal bleeding. She had five children, "probably normal." The third aunt, aged 51, had had rheumatic fever but was otherwise normal. Her one son is healthy, but her grand-daughter, aged 6, had "rheumatism." The fourth aunt,* aged 55, had rheumatic pains but no S E. Her C.R.T. was positive. Her two sons and one daughter were normal. In June, 1939, E F. told me that her daughter had recently had attacks of "bruises," almost certainly spontaneous.

FAMILY IV

Of two sisters one had Schönlein-Henoch purpura and the other purpura simplex. The latter had had rheumatic fever, and she had three daughters all with purpura simplex. Two daughters have previously had rheumatic fever.



FAMILY IV

G. H.,* aged 46, was admitted to hospital for menopausal faintness and giddiness in September, 1938 She had had rheumatic fever at 16 and 20 and rheumatic pains for eleven years She was rarely free from petechiæ and showed S.E. preceded by an aching in the limb concerned. Her menstrual loss was always abundant. There were no other abnormal bleedings or bruisings.

G. H. had three daughters. Her eldest daughter* had rheumatic fever at 11, 19, and 23. Since her first attack she has had frequent S.E. ½–2 in in diameter on the shoulders, elbows, and knees accompanied by pain and swelling of the joints She also bruised easily, though not extensively, on slight injury. There was no menorrhagia. Examination revealed mitral stenosis and aortic regurgitation without cardiac failure

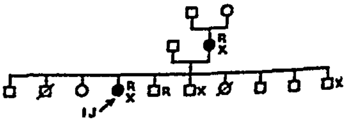
The second daughter is away from home and has hitherto been unavailable for examination. She has shown S.E. for ten years. The third daughter* had rheumatic fever at 8, and the mother said that she had S.E The daughters do not bleed unduly from cuts.

G. H.'s sister,* aged 59, bled for a long time after cuts and bruised easily. For twenty years her elbows and knees have swelled intermittently For eleven years she has had "heart trouble" Her blood-pressure was 170/100 mm. Hg During this time large S E. have appeared every few months on knees, ankles, and elbows, and large abdominal swellings have occurred, lasting some three weeks and being followed invariably by severe rectal hæmorrhage, which gives relief. On examination in October there was a fading ecchymoses over the right knee 4 in. in diameter. She clearly had Schonlein-Henoch purpura. Unfortunately she only permitted a C.R.T., which was negative, and would not cooperate further. G. H.'s parents, grandparents, uncles, aunts, six brothers, and their children were not known to have any relevant abnormality.

FAMILY V

A mother and her daughter had purpura simplex

I. J.,* aged 43, was kindly referred to me by Dr. J. N Morris. She had had S E. for six months and had complained of pain of the sciatic type in the right leg for nine months. She had had menorrhagia. I J 's mother* had noticed S E. for five years. She complained of severe pain in the shoulders and knees. Until the age of 21 epistaxes had been frequent and severe She also had had menorrhagia Her blood-pressure was 220/120 mm Hg. A brother of I J. had suffered from rheumatic fever. One other brother* had a negative C.R.T. Otherwise there was nothing noteworthy about the family.

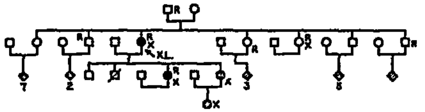


FAMILY V

FAMILY VI

A mother and her daughter had purpura simplex Arthritis and rheumatic fever were prominent in this family

K L,* aged 58, was admitted for rheumatoid arthritis She had had S E for three years She used to have menorrhagia There was no undue bleeding from cuts or operations, but she believed she bruised easily Her eldest brother, aged 62 had "heart-disease" and synovitis of the knees, the second died of pulmonary tuberculosis at 40, and the youngest brother, who had suffered from rheumatic fever, died suddenly at 41 One sister,* aged 49, had osteo arthritis of her knees (C R T negative), and another, aged 44, had severe rheumatoid arthritis



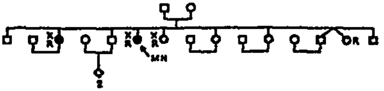
FAMILY VI

K L's elder son had tuberculous cervical glands Her elder daughter* had S E, suffered from epistaxes every few months, and between the ages of 18 and 22 had severe menorrhagia She complained of severe rheumatic pains in the neck, upper spine, knees, and ankles There was no other unusual bleeding or bruising in this family, but K L's younger daughter* had a positive C R T

FAMILY VII

Purpura simplex developed in two sisters Rheumatic features were present in the sisters and two siblings

M N,* aged 35, showed S E At 8 she suffered from rheumatic fever Her elder sister* had S E and "rheumatic" pains in the limbs A younger sister,* aged 33, possibly had S E but this was not confirmed She had "rheumatic" pains and a positive C R T The youngest sister, aged 27, had suffered from rheumatic fever and chorea There was nothing else noteworthy about the family

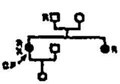


FAMILY VII

FAMILY VIII

Purpura is described in two sisters

O P,* aged 60, showed S E She also bruised easily and had frequent epistaxes She had suffered from rheumatoid arthritis for the last two years It is noteworthy that she developed hæmaturia after gold therapy, and during the course of an operation for cataract there was considerable extravasation of blood into the eye She assured me that her sister, aged 60, living in Hull also had S E and "rheumatism," and that her father suffered much from "rheumatism" O P's daughter died of tuberculous meningitis at 28

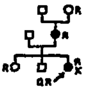


FAMILY VIII

FAMILY IX

A mother and her daughter had purpura associated with "rheumatism" and rheumatoid arthritis

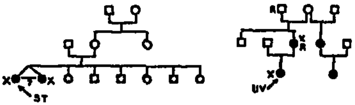
Q R,* aged 43, showed S E and petechiæ She had severe rheumatoid arthritis for the last five years At 16 she had sanatorium treatment for pulmonary tuberculosis There had been no active tuberculosis since She bruised easily after moderate injuries but did not bleed unduly after cuts She had had severe menorrhagia Her sister, 40, had "rheumatism" but no unusual bruising Her mother suffered severely from "rheumatism" and had S E There was a history of rheumatic fever in Q R's grandmother



FAMILY IX

FAMILY X

Twin sisters (S T) of 18, probationer nurses, showed S E from the age of 10 They each had a negative C R T There was no history of unusual bleeding or bruising or of rheumatism in the family



FAMILY X   FAMILY XI

FAMILY XI

A mother and her daughter (U V) the mother's half sister, and the latter's daughter all had purpura U V died from chronic nephritis accompanied by widespread hæmorrhages U V's mother had had hæmoptyses

U V,* aged 22, was kindly referred to me by Dr B J Freedman She gave a history of scarlet fever and nephritis at the age of 10 months From the age of 14 years S E appeared on her limbs about once a month Three months before admission she had a left subconjunctival hæmorrhage Two weeks before admission her nose bled profusely, and a week later numerous ecchymoses appeared on her limbs and there was much rectal hæmorrhage On admission her blood pressure was 300/200 mm Hg, her abdomen was generally tender, and her urine contained blood The bleeding time, coagulation time and clot-retraction were normal The blood Wassermann and Kahn reactions and the moccasin snake-venom test were negative She died a month later in uræmic coma

At autopsy (done by Dr S Robinson) granular contracted kidneys were found, with many small abscesses in each cortex and numerous hæmorrhages in each dilated pelvis There was great hypertrophy of the left ventricle There were hæmorrhagic erosions in stomach and intestines and an old hæmorrhage in the capsule of the spleen.

U V's mother,* aged 53 had several hæmoptyses at 22 She had been in a tuberculosis sanatorium for two years Radiography of her chest in 1938 at St Stephen's Hospital suggested congenital cystic disease of lung but no evidence of active or old tuberculosis (She refused admission for further investigation) She showed S E and for the past year had had rheumatoid arthritis She said that her half sister and her half-sister's daughter had S E (U V's grandmother married twice)

All the persons described above took seemingly adequate diets except I J (family V) and U V's mother (family XI) After the administration of 300 mg of vitamin C daily by mouth for three weeks

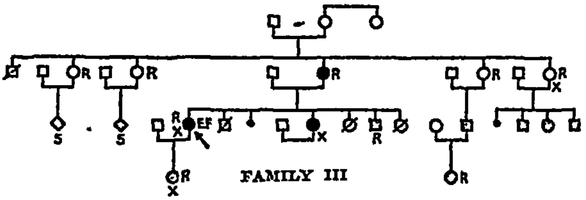
C. D.'s daughter* had had many epistaxes and occasional bleeding from conspicuous telangiectases on her face. She gave a history of S.E. and showed petechiæ. Her menstrual periods were always scanty. I was present at the birth of her first child, a male. There was no abnormal bleeding. Her baby* had a few telangiectases of the nose and occipital region from birth.

Of C. D.'s sisters the eldest died at 51, and nothing abnormal regarding her or her son was known. The second sister,* aged 54, showed facial telangiectases, but there were no abnormal bleedings. Her C.R.T. was positive. Her son and daughter were said to be normal. The youngest sister,* aged 52, had facial telangiectases, S.E, and petechiæ. Her daughter,* aged 9, had epistaxes but was otherwise normal. C. D.'s three other siblings died in infancy. Nothing relevant was known about C. D.'s parents, grandparents, aunts, and uncles.

FAMILY III

A mother and her two daughters had purpura simplex at the climacteric The mother and her four sisters had rheumatic manifestations.

E. F.,* aged 48, was admitted in August, 1938, for erythema nodosum. She had had rheumatic pains in the limbs for years, and for six months had suffered from pains in the ankles, knees, and elbows Her husband died from pulmonary tuberculosis twelve years ago, but repeated investigation of E. F. for tuberculosis had been negative. On examination E. F. had skin petechiæ, and a history was elicited of S. E, which were seen subsequently. They were not preceded by pain Menses had always been scanty. There were no other abnormal bleedings. Three siblings of E F. died in infancy.



FAMILY III

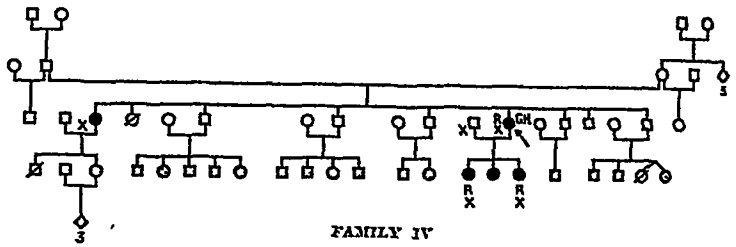
E. F. had one daughter,* aged 17, who had menorrhagia and for twelve months had had pains in the legs and knees. Otherwise she was normal. E. F 's sister* had S.E. E. F.'s brother, aged 38, was not known to have any abnormal bleedings but was said to suffer from "rheumatism." E. F 's mother died at 63 from cerebral hæmorrhage. She suffered from rheumatoid arthritis and developed masses of bruises mostly about the joints, in the absence of any injury, from the age of 51 onwards—i e, from the time of her climacteric. Nothing relevant was known in E. F.'s father and grandparents.

E. F. had no uncles, but she had four maternal aunts. The eldest aunt, aged 73, is normal apart from "rheumatism" She had five normal children. The second aunt died at 63 in Australia. She had had rheumatic fever and no known abnormal bleeding. She had five children, "probably normal." The third aunt, aged 51, had had rheumatic fever but was otherwise normal. Her one son is healthy, but her grand-daughter, aged 6, had "rheumatism." The fourth aunt,* aged 55, had rheumatic pains but no S E. Her C.R.T. was positive. Her two sons and one daughter were normal In June, 1939, E. F. told me that her daughter had recently had attacks of "bruises," almost certainly spontaneous.

FAMILY IV

Of two sisters one had Schönlein-Henoch purpura and the other purpura simplex. The latter had had rheumatic fever, and she had three daughters all with purpura simplex Two daughters have previously had rheumatic fever.

G. H.,* aged 46, was admitted to hospital for menopausal faintness and giddiness in September, 1938 She had had rheumatic fever at 16 and 20 and rheumatic pains for eleven years. She was rarely free from petechiæ and showed S.E. preceded by an aching in the limb concerned. Her menstrual loss was always abundant. There were no other abnormal bleedings or bruisings



FAMILY IV

G. H. had three daughters Her eldest daughter* had rheumatic fever at 11, 19, and 23. Since her first attack she has had frequent S E ½–2 in. in diameter on the shoulders, elbows, and knees accompanied by pain and swelling of the joints. She also bruised easily, though not extensively, on slight injury. There was no menorrhagia. Examination revealed mitral stenosis and aortic regurgitation without cardiac failure.

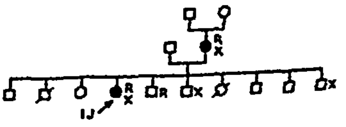
The second daughter is away from home and has hitherto been unavailable for examination. She has shown S E. for ten years. The third daughter* had rheumatic fever at 8, and the mother said that she had S.E The daughters do not bleed unduly *from cuts*

G. H.'s sister,* aged 50, bled for a long time after cuts and bruised easily. For twenty years her elbows and knees have swelled intermittently. For eleven years she has had "heart trouble" Her blood-pressure was 170/100 mm. Hg. During this time large S E. have appeared every few months on knees, ankles, and elbows, and large abdominal swellings have occurred, lasting some three weeks and being followed invariably by severe rectal hæmorrhage, which gives relief. On examination in October there was a fading ecchymoses over the right knee 4 in. in diameter. She clearly had Schonlein-Henoch purpura Unfortunately she only permitted a C.R.T., which was negative, and would not coöperate further. G. H.'s parents, grandparents, uncles, aunts, six brothers, and their children were not known to have any relevant abnormality.

FAMILY V

A mother and her daughter had purpura simplex

I. J.,* aged 43, was kindly referred to me by Dr J. N. Morris. She had had S.E for six months and had complained of pain of the sciatic type in the right leg for nine months. She had had menorrhagia I. J 's mother* had noticed S E. for five years She complained of severe pain in the shoulders and knees. Until the age of 21 epistaxes had been frequent and severe. She also had had menorrhagia Her blood-pressure was 220/120 mm. Hg. A brother of I. J. had suffered from rheumatic fever. One other brother* had a negative C R T. Otherwise there was nothing noteworthy about the family

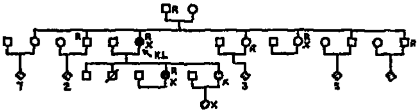


FAMILY V

FAMILY VI

A mother and her daughter had purpura simplex Arthritis and rheumatic fever were prominent in this family

K L,* aged 58, was admitted for rheumatoid arthritis She had had S E for three years She used to have menorrhagia There was no undue bleeding from cuts or operations, but she believed she bruised easily Her eldest brother, aged 62, had "heart-disease" *and synovitis of the knees, the* second died of pulmonary tuberculosis at 46, and the youngest brother, who had suffered from rheumatic fever, died suddenly at 41 One sister,* aged 49, had osteo arthritis of her knees (C R T negative), and another, aged 44, had severe rheumatoid arthritis



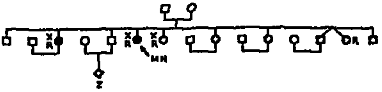
FAMILY VI

K L's elder son had tuberculous cervical glands Her elder daughter* had S E, suffered from epistaxes every few months, and between the ages of 18 and 22 had severe menorrhagia She complained of severe rheumatic pains in the neck, upper spine, knees, and ankles There was no other unusual bleeding or bruising in this family, but K L's younger daughter* had a positive C R T

FAMILY VII

Purpura simplex developed in two sisters Rheumatic features were present in the sisters and two siblings

M N,* aged 35, showed S E At 8 she suffered from rheumatic fever Her elder sister* had S E and "rheumatic" pains in the limbs A younger sister,* aged 33 possibly had S E but this was not confirmed She had "rheumatic" pains and a positive C R T The youngest sister, aged 27, had suffered from rheumatic fever and chorea There was nothing else noteworthy about the family

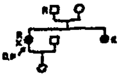


FAMILY VII

FAMILY VIII

Purpura is described in two sisters

O P,* aged 66, showed S E She also bruised easily and had frequent epistaxes She had suffered from rheumatoid arthritis for the last two years It is noteworthy that she developed hæmaturia after gold therapy, and during the course of an operation for cataract there was considerable extravasation of blood into the eye She assured me that her sister aged 60, living in Hull also had S E and "rheumatism" and that her father suffered much from "rheumatism." O P's daughter died of tuberculous meningitis at 28

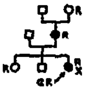


FAMILY VIII

FAMILY IX

A mother and her daughter had purpura, associated with "rheumatism" and rheumatoid arthritis

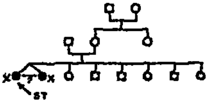
Q R,* aged 43, showed *S E* and petechiæ She had severe rheumatoid arthritis for the last five years At 16 she had sanatorium treatment for pulmonary tuberculosis There had been no active tuberculosis since She bruised easily after moderate injuries but did not bleed unduly after cuts She had had severe menorrhagia Her sister, 40, had "rheumatism" but no unusual bruising Her mother suffered severely from "rheumatism" and had S E There was a history of rheumatic fever in Q R's grandmother



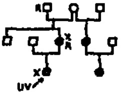
FAMILY IX

FAMILY X

Twin sisters (S T) of 18, probationer nurses, showed S E from the age of 10 They each had a negative C R T There was no history of unusual bleeding or bruising or of rheumatism in the family



FAMILY X



FAMILY XI

FAMILY XI

A mother and her daughter (U V), the mother's half sister, and the latter's daughter all had purpura U V died from chronic nephritis accompanied by widespread hæmorrhages U V's mother had had hæmoptyses

U V,* aged 22, was kindly referred to me by Dr B J Freedman She gave a history of scarlet fever and nephritis at the age of 10 months From the age of 14 years S E appeared on her limbs about once a month Three months before admission she had a left subconjunctival hæmorrhage Two weeks before admission her nose bled profusely, and a week later numerous ecchymoses appeared on her limbs and there was much rectal hæmorrhage On admission her blood pressure was 300/200 mm Hg, her abdomen was generally tender, and her urine contained blood The bleeding-time coagulation time, and clot-retraction were normal The blood Wassermann and Kahn reactions and the moccasin snake-venom test were negative She died a month later in uræmic coma

At autopsy (done by Dr S Robinson) granular contracted kidneys were found, with many small abscesses in each cortex and numerous hæmorrhages in each dilated pelvis There was great hypertrophy of the left ventricle There were hæmorrhagic erosions in stomach and intestines and an old hæmorrhage in the capsule of the spleen

U V's mother,* aged 53, had several hæmoptyses at 22 She had been in a tuberculosis sanatorium for two years Radiographs of her chest in 1939 at St Stephen's Hospital suggested congenital cystic disease of lung but no evidence of active or old tuberculosis (She refused admission for further investigation) She showed S E and for the past year had had rheumatoid arthritis She said that her half-sister and her half-sister's daughter had S E (U V's grandmother married twice)

All the persons described above took seemingly adequate diets except I J (family V) and U V's mother (family XI) After the administration of 300 mg of vitamin C daily by mouth for three weeks to A. B., C D, E. F, and G. H. the ecchymoses did not cease, but the C.R.T. tended to become negative.

Discussion

Spontaneous ecchymoses (S.E.) are described in eleven families: in members of successive generations in eight families and in sisters of the same generation only in three families. The S.E diminished in number (but did not disappear) when the patient was confined to bed Orthostatic purpura is known to occur—e g, Achard and Grenet (1904)—and purpura can be provoked by muscular effort (Sézary, Horowitz, and Rivoire 1931). It is remarkable that no ecchymoses were seen on the trunk, though petechiæ were often observed there. The table shows that anæmia was not constant in the purpuric cases, and when seen it occurred in the presence of complicating disease

Spontaneous ecchymoses occur at the climacteric (Simpson 1938), although rather infrequently, according to Peck et al. (1937). It is noteworthy that ecchymoses first appeared at or near the climacteric in five families In two other families a member first developed S E near the climacteric, but that was not the first appearance of purpura in the family. In later generations ecchymoses appeared at earlier ages in seven families (I have also observed other cases of spontaneous ecchymoses at the climacteric, in which there was no evidence of familial or hereditary tendency.) In the families described I examined 25 purpuric members The capillary-resistance test was positive in 16 and negative in 9 The test was also positive in 4 non-purpuric members of these families

The frequency of rheumatic fever and rheumatoid arthritis in these families was striking Thus purpuric members gave a history of rheumatic fever in four families and of rheumatoid arthritis in five other families Non-purpuric relations had had rheumatic fever in five families and rheumatoid arthritis in one family Only in family X (that of the twins with purpura simplex) was there no close relation with rheumatic fever or rheumatoid arthritis. But Pratt (1908) concluded that there was probably no relationship between rheumatism and purpura, although he accepted the connexion between purpura and arthritis Yet Mackenzie (1898) found 61 out of 200 consecutive cases of purpura to be associated with rheumatism I believe that there is a significant relationship between purpura, rheumatic fever, and rheumatoid arthritis

It is to be remarked that E F.'s husband died of pulmonary tuberculosis, and that E. F. had erythema nodosum, that close relations of K L had tuberculosis, that O. P 's daughter died of tuberculous meningitis, and that Q R and the mother of U V had been treated for pulmonary tuberculosis.

What is the nature of this familial purpura? It is clearly not the hereditary hæmorrhagic thrombasthenia of Glanzmann (1918)—subsequently called hereditary pseudohæmophilia (Schlicke and Hall 1938)—because typical features, such as severe bruising from slight trauma, recurrent visceral hæmorrhages, and prolonged bleeding-time. were absent. No member of any family showed a picture resembling pseudohæmophilia except U V when she was dying from chronic nephritis—and U. V 's bleeding-time was normal. Only O. P. and Q. R were found to bruise at all easily on moderate injury Also, in families IV and VI members considered themselves to bruise more easily than average, but there was certainly nothing extreme. There was a history of epistaxis in three families, menorrhagia in three, and both epistaxis and menorrhagia in one family, but these bleedings were not often severe The condition I have described is essentially a familial hereditary purpura simplex seen mostly in females Willan (1808) and Bateman (1817) described and illustrated purpura simplex, and Pratt (1908, 1927) described a chronic form. Ottenberg (1918) reported a chronic intermittent variety mostly in women otherwise healthy. Tidy (1926, 1937) stated that purpura should never be regarded lightly. He considered purpura simplex and purpura hæmorrhagica to be grades of severity of the same condition Observations are being continued, with Tidy's views in mind.

Purpura simplex is not mentioned among the familial purpuras described by Goldstein (1937) and Bailey and McAlpin (1935); nor is it mentioned by Witts (1934) and Gates (1920), who wrote comprehensively on hereditary bleeding The only references I have traced are by Bauer (1868) and Pratt (1908). Bauer stated that families were seen in whom members at a given age suffered from purpura He described a mother, normal apart from menorrhagia, whose eldest daughter, originally presenting purpura simplex, later developed severe visceral hæmorrhages and died at 22 Two other daughters had purpura simplex only. Pratt (1908) quoted Forster, who saw purpura in three sisters, and Dohrn, who reported purpura in a mother and her newborn child, but the nature of the purpura is not stated in either family Familial purpura simplex can hardly be uncommon, for I saw eleven families in twelve months. But medical advice was not sought for this condition, and patients were not always aware that other relations were affected. The group of hereditary bleeding tendencies is more complete with hereditary purpura simplex added. The latter seems the most benign form of hereditary hæmorrhagic diathesis At the other extreme is hæmophilia, and between them comes pseudohæmophilia. The association of hereditary telangiectasia with hereditary purpura in one family is striking One wonders if the association is fortuitous, or if there is a link between them.

Summary

Eleven families are described in whom spontaneous ecchymoses developed, mostly but not exclusively in females. In eight families purpura occurred in successive generations, and in three families in sisters of the same generation only The capillary-resistance test was often positive Platelet counts, bleeding-time, coagulation-time, blood-fibrinogen, and clot-retraction were normal where tested Other tendencies to abnormal bleeding or bruising were not often present and were rarely severe; but one female with purpura simplex died of a chronic nephritis associated with widespread hæmorrhages. One family also showed hereditary telangiectasia Ecchymoses first appeared in five families about the time of the climacteric, and they came on at earlier ages in the next generation in seven families The ecchymoses were frequently associated with rheumatoid arthritis and rheumatic fever. The condition is regarded as a hereditary familial purpura simplex.

I have pleasure in thanking Sir Frederick Menzies, medical officer of health to the London County Council, and Dr. D. S. Sandiland, medical superintendent of St. Stephen's (London County Council) Hospital, for permission to publish this paper, Dr. G W. Goodhart, of the London County Council group laboratory, for pathological investigations, and the medical and nursing staff of the hospital for their cooperation

References at foot of next page

VINESTHENE ANÆSTHESIA IN GENERAL PRACTICE

By John Elam, M R C S

VISITING ANÆSTHETIST TO THE WELLHOUSE HOSPITAL, BARNET

Most anæsthetics in this country are administered by general practitioners, and the economic aspect of their administration is very prominent The tendency is to avoid the use of ether and chloroform so far as possible and to rely on nitrous oxide and oxygen anæsthesia, reinforced when necessary by ether and by premedication with sedative drugs Without modern and expensive apparatus, however, we cannot hope to give really satisfactory gas and oxygen anæsthesia for major surgery, and the general practitioner anæsthetist must rely on those anæsthetics which can be used with less expensive apparatus The fees received for anæsthesia in general practice do not allow of the purchase of the most modern machines, so the general practitioner anæsthetist cannot compete with the specialist anæsthetist, who uses delicate and expensive apparatus

The introduction of vinesthene has greatly reduced the difficulties associated with anæsthesia, because the addition of small quantities of vinesthene or of vinesthene mixture to gas and oxygen delivered from a relatively simple apparatus, such as a Boyle's machine, makes just the difference between good and bad anæsthesia renders the administration extremely easy, and frees the administrator from many of his anxieties

It is therefore unfortunate that the use of this anæsthetic is still far from general, and I feel that if practitioners were fully aware of the immense advantages of vinesthene and vinesthene mixture, they would readily adopt them The results of the original investigations carried out on vinesthene were published by Shipway (1935)

Vinesthene is made up in two forms (1) pure vinesthene in glass capsules containing 3 c cm or in small bottles containing 25 c cm, and (2) mixed with ether in the proportion of 25 per cent of vinesthene and 75 per cent of ether in 8 oz bottles This vinesthene mixture has certain advantages, because pure vinesthene, once the bottle has been opened, is unstable and cannot be kept but the vinesthene mixture appears to be as stable as ether by itself

METHODS OF ADMINISTRATION

Having had experience of the use of vinesthene and of vinesthene mixture in some 2000 cases, I am convinced of its immense value for anæsthesia in general practice There are various ways of administering vinesthene, and I found that one of the most satisfactory methods was to empty one or two glass capsules—i e, 3 or 6 c cm—of vinesthene into a Clover's inhaler, thus using a closed method of anæsthesia Hadfield (1938) advised against this method because he considered it dangerous I have not personally had any reason to consider this method dangerous but have not cared to disregard his advice I do not, therefore, use vinesthene in the Clover except in connexion with Boyle's machine When this method is adopted, the Clover is inserted between the angle-piece at the end of the tubing leading from the Boyle's machine and the face piece, 3–6 c cm of vinesthene is then inserted into the Clover, and oxygen is allowed to bubble through two holes in the mixing bottle and nitrous oxide through five holes After about four breaths of this mixture, the Clover dial is slowly turned to 1½, and in about twenty breaths the patient is fully anæsthetised

Another satisfactory means of using vinesthene is Harris's (1938) dripper This is attached to Boyle's machine and holds one 25 c cm bottle of vinesthene and can be set to deliver so many drops a minute

Anæsthetics in general practice are administered for a variety of reasons (1) for the treatment of accidents, (2) in general surgery, (3) for special operations, and (4) for midwifery

Treatment of accidents—Most practitioners are attached to a local hospital, to which are brought more or less seriously injured patients from road accidents In most cases it is necessary to administer anæsthetics, and the anæsthetic of choice is usually gas and oxygen The machine in general use is usually a Boyle's apparatus, which cannot really be described as a gas and oxygen machine, but if a very small quantity of vinesthene or of vinesthene mixture is added to the gas and oxygen very satisfactory gas oxygen vinesthene anæsthesia can be obtained from Boyle's apparatus If a Clover is used in conjunction with the Boyle's machine, one or two glass capsules are broken and emptied into the Clover, which is used as already described This is a satisfactory and economical method of using pure vinesthene for short cases

If the case is likely to be long it is better to fit a 25 c cm bottle of vinesthene to the Harris's dripper I have usually found that the vinesthene dripper should be set to deliver thirty drops a minute, which can be added to the gas and oxygen, and this gives satisfactory anæsthesia for the treatment of accident cases The patient is readily anæsthetised there is little or no vomiting, and consciousness is quickly regained

General surgery—The operations of general surgery may be divided into those requiring complete relaxation and those not requiring it Where abdominal relaxation is required I have found it more satisfactory to use vinesthene ether mixture about 24 drachms being placed in the chloroform bottle of Boyle's machine Gas and oxygen is then blown over the mixture, and a satisfactory anæsthesia is obtained

If profound relaxation is required or for resistant patients I induce the anæsthesia with Clover's inhaler in conjunction with Boyle's machine About 2 oz of vinesthene mixture is placed in the Clover which is turned to 0 The dial of the Clover is gradually turned up to 2, and after about five minutes the

---

DR DAVIS' REFERENCES

Achard, C, and Grenet H (1904) *Bull Soc méd Hôp Paris* 21 96
Bailey F R, and McAlpin K R (1935) *Amer J med Sci* 190 263
Bateman T (1817) Delineations of Cutaneous Diseases London.
Bauer (1868) *Dtsch Klin* 20 313
Gates R R (1929) Heredity in Man London, p 213
Glanzmann E (1918) *Jb Kinderheilk* 88, 1 113
Goldstein H I (1937) *Acta pædiat Stockh* 22, 485
Mackenzie S (1898) in Allbutt's System of Medicine London, vol v p [illegible]
Ottenberg R (1918) *Med Clin N Amer* 2 289
Peck, S M Rosenthal N and Fel L (1937) *Arch Derm Syph N Y* 35 831
Pratt, J H (1909) in Osler and McCrae's Modern Medicine London vol iv p 681
— (1927) *Ibid* vol v, p 101
Schlicke C P and Hall B F (1938) *Proc Mayo Clin* 13, 529
Sézary A, Horowitz A and Rivoire (1931) *Bull Soc méd Hôp Paris* 47 760
Simpson S L (1938) Major Endocrine Disorders London, p 149
Tidy H L (19[illegible]) *Lancet* 2 365
— (1937) British Encyclopædia of Medical Practice London, vol vi p 13[illegible]
Willan R (1808) On Cutaneous Diseases London
Witts L J (1934) in Blacker's The Chances of Morbid Inheritance London and Baltimore p 224

patient is fully anæsthetised. A Magill's tube is then introduced through the nose and coupled up to the Boyle's machine. The gas-and-oxygen is then allowed to blow over the vinesthene mixture in the chloroform bottle, and sufficient relaxation is usually obtained in this way. If relaxation is not sufficient, a little ether can be added from the ether bottle. For operations requiring profound relaxation and for difficult patients ether may be freely used with safety.

Vinesthene (pure) can be of great assistance in anæsthetising the very ill patient who is a bad surgical risk, such as one with a neglected perforated gastric ulcer, intestinal obstruction, or severe internal hæmorrhage. Ether or chloroform will undoubtedly add to the heavy burden the patient is already carrying, yet gas-and-oxygen will often not suffice. In attempting to control the anæsthesia with gas-and-oxygen alone there is a temptation to allow some degree of anoxæmia to develop, which the patient will not tolerate If vinesthene be added to the gas-and-oxygen, however, an ample supply of oxygen can be administered, the patient kept a good colour, and adequate relaxation obtained. It may be necessary to add a little vinesthene mixture from the chloroform bottle for a short period, but very small quantities will suffice.

Gas-oxygen-vinesthene appears to have no more injurious effect than gas-and-oxygen alone, and the administration becomes much easier. It has been assumed that a Boyle's machine is available, as is usually the case today in most hospitals however small; but, should this not be the case, the vinesthene-ether mixture can be placed in the ether bottle of a Shipway's machine and used as if it were ether. The open method is also suitable, the induction being easy and the maintenance of the anæsthesia smooth.

When abdominal relaxation is not required, either gas-oxygen-vinesthene or gas-oxygen-vinesthene-ether mixture may be used The gas-oxygen-vinesthene mixture has been found very suitable for operations on the skull, such as decompression; for dissection of tonsils; dental operations; and cæsarean section.

I do not think that vinesthene or vinesthene mixture offers any advantages over ethyl-chloride-ether for tonsil guillotine operations.

I have found the gas-oxygen-vinesthene technique of very special value in three special operations: (1) thyroidectomy; (2) drainage of empyemata; and (3) suprapubic cystotomy

Thyroidectomy.—For this operation premedication with Avertin followed by gas-and-oxygen has been found most satisfactory, but in many provincial hospitals there are certain difficulties in the way of using avertin, without which gas-and-oxygen will hardly suffice. When, however, vinesthene is added to the gas-and-oxygen, the premedication becomes of less importance

I have found premedication with Hyoscine Compound A, Nembutal (gr. 3 by mouth), or Sodium Soneryl (4 capsules by mouth) satisfactory. Gas-and-oxygen is then administered by the Boyle's machine, and vinesthene by the Harris dripper at the rate of twenty-five to thirty-five drops a minute An excellent anæsthetic results, and there is no straining during the operation The flow of vinesthene may be cut off from time to time, so that one 25 c cm. bottle usually suffices for the operation There is usually no postoperative vomiting

Drainage of empyemata.—The anæsthetic for this operation always presents difficulties, ether and chloroform being unsuitable and local infiltration sometimes distressing to the patient. Here again gas-oxygen-vinesthene sequence proves invaluable Premedication with morphine sulphate gr ¼ is helpful, and then gas-oxygen-vinesthene is administered. Very little vinesthene is required, and, if the dripper is set to deliver thirty drops a minute for the first five minutes, the vinesthene can usually be then turned off and the operation continued with gas-and-oxygen

I have found that the eye signs with vinesthene are a little misleading, and a little practice is required before one knows exactly at what depth the anæsthesia had been produced.

Suprapubic cystotomy.—There is one operation in surgery for which I have found pure vinesthene of inestimable value, and that is suprapubic cystotomy in elderly and ill patients sent to hospital with acute retention. At one time I used to try to anæsthetise these patients for suprapubic drainage with gas-and-oxygen alone, but I found that this was not altogether satisfactory, because these patients do not tolerate the least degree of anoxæmia, and they develop laryngeal spasm when the bladder is opened. If a little pure vinesthene is added to the gas-and-oxygen, a most satisfactory anæsthetic results The gas-and-oxygen is turned on and the Harris's dripper set to deliver about thirty drops a minute By this means the patient is kept a good colour, and the surgeon obtains sufficient relaxation to introduce the tube into the bladder

In midwifery vinesthene and vinesthene mixture have been found extremely useful for examination under an anæsthetic, external version, forceps delivery, repair of perineum, and cæsarean section. It is extremely desirable that, when a patient is to be examined under an anæsthetic before labour begins, she shall not be made ill by the anæsthetic, and I have found that gas-and-oxygen and pure vinesthene is a most satisfactory technique.

For external version or for forceps delivery some relaxation is required, and here open vinesthene mixture is suitable A standard ether-dropper cork just fits into the 8 oz bottles of vinesthene mixture The face-pad is placed over the patient's face, and then the open mask, on which the vinesthene mixture is dropped from an ether dropper at a speed at which individual drops can just be distinguished, and in about twenty breaths the patient is anæsthetised and the mixture can be poured on rather more quickly. Relaxation is obtained with a very light anæsthesia, there is little or no vomiting, and the patient readily recovers.

For cæsarean section it is desirable that the patient should not be too deeply anæsthetised, and yet that sufficient relaxation should be obtained to enable the surgeon to complete the operation without straining When I first used vinesthene I thought that gas-oxygen-vinesthene was the anæsthetic of choice for cæsarean section, but I found that sometimes I was obliged to add ether to the gas-oxygen-vinesthene. So I then used vinesthene mixture, placing it in the chloroform bottle of a Boyle's machine and administering gas-oxygen-vinesthene mixture; but I was not satisfied that this was the best technique. I have now decided that the best method is to induce the anæsthetic with gas-and-oxygen-vinesthene, using Harris's dripper. In the chloroform bottle of Boyle's machine I place about 2 oz. of vinesthene-ether mixture Gas-oxygen-vinesthene (pure) is administered until the baby is born, when the vinesthene-ether mixture is turned on, so that the surgeon can stitch up the uterus without the intestines getting in the way. It will usually only be necessary to turn on the vinesthene-ether mixture for a brief period

ECONOMIC ASPECT

It is sometimes thought that the cost of vinesthene is a definite objection to its use; but, when one considers how very little of this anæsthetic is used per case, this objection cannot be upheld I have found that 25 c cm will suffice for a thyroid operation taking perhaps an hour, and this only costs 4*s* 0*d* (retail price), which compares favourably with for example, open ether For a partial gastrectomy in an elderly patient I recently used 50 c cm of vinesthene and 1 oz of vinesthene mixture, the cost of which cannot be considered prohibitive

SUMMARY

In vinesthene and vinesthene mixture we have an anæsthetic of the greatest value to the general practitioner and well within his means The use of this drug will facilitate the production and maintenance of anæsthesia and assist both practitioner and patient

REFERENCES

Hadfield C F (1938) *Brit med J* 1 1175
Harris T A B (1938) *Lancet* 1 1338
Shipway, F F (1935) *Ibid*, 1 82

CONGENITAL DUODENAL DIVERTICULUM

By W E Tanner, M S Lond, F R C S
SURGEON TO THE PRINCE OF WALES'S HOSPITAL, TOTTENHAM,
AND
T H C Benians, F R C S
PATHOLOGIST TO THE PRINCE OF WALES'S AND NORTH MIDDLESEX COUNTY HOSPITALS

One of us (Tanner 1936) has previously recorded the excision of a large duodenal diverticulum situated in the head of the pancreas, one attack of pain has occurred since the operation and was relieved with belladonna A barium meal and radiography during the attack of pain showed spasm of the duodenum at the site of excision, this disappeared after the injection of atropine gr $\frac{1}{100}$ The case recorded below is another example of a duodenal diverticulum, but not connected with the head of the pancreas

CASE RECORD

The patient, a married woman aged 61, was admitted to the Prince of Wales's Hospital on Jan 25, 1938, with a history of "indigestion" of twenty years' duration The symptoms were pain and discomfort in the epigastrium and right hypochondrium, coming on half an hour to an hour after food and followed almost immediately by nausea and occasionally by vomiting, which seemed to relieve the pain During the last year the pain had been severe, with loss of 1 st in weight

On examination it was obvious that she had lost weight, though her colour was good She was tender in the right epigastrium and hypochondrium There was no rigidity, and no mass was palpable There were no other physical signs A radiological examination was made by the late Dr A C Dixon, who reported: "The six-hour meal shows a residue to the right of the spine with an air pocket above (fig 1*a*) Duodenal cap of good shape and not tender The second stage of the duodenum passes towards the right and upwards, joining the residue previously mentioned in a large diverticulum or possibly in the gall-bladder, though in the lateral view the diverticulum seems too posterior to be the gall-bladder (fig 1*b*) Twenty-four hours later there is still a residue in the diverticulum"

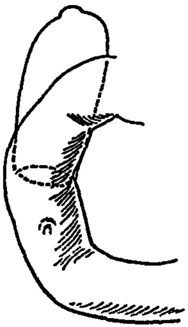


Fig 2—Diagram of edge of duodenal diverticulum seen under the peritoneum covering the posterior abdominal wall to the right of the foramen of Winslow

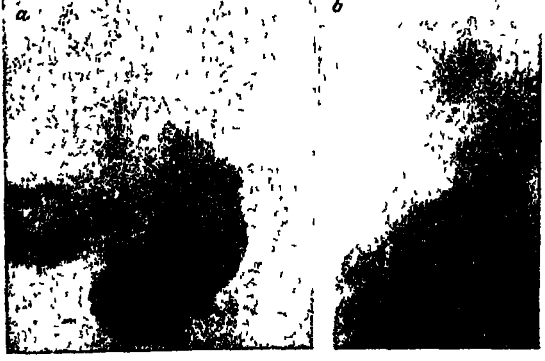


Fig 1 Radiograms of duodenal diverticulum (*a*) anteroposterior view showing residue of barium meal, with an air pocket above it to the right of the spine (*b*) lateral view

Operation—On Jan 27, 1938, a right paramedian laparotomy was performed under intratracheal anæsthesia administered by Dr Douglas Belfrage The gall-bladder was healthy No ulcer was found in the stomach, and the first part of the duodenum was unusually long and mobile The edge of the diverticulum (fig 2) could be seen under the peritoneum covering the posterior abdominal wall to the right of the foramen of Winslow The peritoneum covering the posterior sac was not thickened, and there were no signs of old or recent inflammation The peritoneum was incised and the empty sac easily dissected out The sac arose from the posterior aspect of the second part of the duodenum 1 in above the level of the ampulla of Vater and extended upwards and outwards It was detached from the duodenum, and the opening in the duodenum 1 in in diameter was closed with two layers of continuous catgut The incision in the posterior peritoneum was also sutured with catgut, and the abdomen was closed without drainage

The patient has made a good recovery and is now free from symptoms and putting on weight on an ordinary diet

Pathological report—The diverticulum (fig 3) measures 2 in in length and 1 in in width at the opening, increasing to 1½ in at the fundus It is thin walled and shows some still thinner sacculated areas at the distal end.

Sections under the microscope (fig 4) show a mucosa with the characters of the jejunum rather than duodenum There are well formed villi with numerous goblet cells in the epithelium of the crypts of Lieberkuhn The lamina propria shows the usual character of small-bowel structure, but no nodules of lymphoid tissue are seen. The crypts rest directly on the muscularis mucosæ, the two layers of which are intact and not pierced by the ducts of Brunner's glands as in normal duodenal structure. Brunner's glands, which should lie beneath the muscularis mucosæ, are entirely lacking. Sections toward the base of the diverticulum show a true outer muscle coat separated from the muscularis mucosæ by areolar tissue; more distally the muscle coat fades out, leaving the muscularis mucosæ only, and beyond this in the saccular dilatations the wall consists of the mucosa with a thin layer of areolar tissue *outside* it.

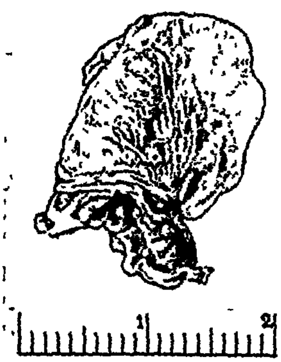


FIG. 3—Duodenal diverticulum excised. Scale shows 2 in.

The diverticulum appears to be a large superficial congenital heterotopia or aberrant portion of the jejunal mucosa, which in its growth has produced a sacculus of some size, almost a viscus. No macroscopical or microscopical evidence of inflammation is seen.

COMMENTS

The wide opening and general appearance of the diverticulum suggest a portion of bowel produced by normal growth processes rather than a pressure diverticulum developing through a weakened spot in the muscularis proper of the bowel. The unusual mobility and length of the diverticulum noted at operation further support the view that it is congenital.

Aberrant portions of the mucosa are not uncommon in the upper alimentary tract, though perhaps less common in the duodenum than elsewhere. They may also be associated with congenital diverticula, although these latter are usually very small and, though perforating the muscularis mucosæ, do not pass through the proper muscular coat of the bowel.

Certain points in the embryological origin of diverticula are worth discussion. Taylor (1927) suggests that these arise in the congenital diverticula which have been noted in the ventral aspect of the fore gut of early mammalian embryos. Two diverticula which persist into adult life—namely, those forming the liver and pancreatic ducts—arise on the ventral aspect of the fore gut. They are moved in early fœtal life, partly by the rotation of the gut to the right and partly by irregular growth in the wall of the primitive gut, to their adult site on the median posterior aspect of the duodenum. Such a diverticulum as that described above could therefore have been derived from a primitive pouch on the ventral aspect of the fore gut.

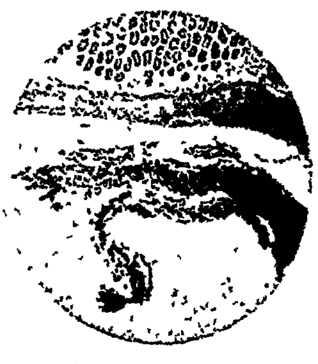


FIG. 4—Microscopic section of duodenal diverticulum.

Of the constituent elements of the mucosa of the small gut the crypts of Lieberkühn are formed in the third month, Brunner's glands in the fourth, and the lymphoid tissue in the fifth. Only the first of these was present in the diverticulum. *It may therefore* be said to correspond to the adult form of a third-month fœtal mucosa.

REFERENCES

Tanner, W. E. (1936) *Lancet*, 2, 853.
Taylor, A. L. (1927) *J. Path. Bact.* 30, 415.

RENAL CALCULI FOLLOWING ALKALI THERAPY

BY THOMAS MOORE, M.S. Durh., F.R.C.S.
CHIEF ASSISTANT TO A SURGICAL UNIT AND UROLOGICAL REGISTRAR, MANCHESTER ROYAL INFIRMARY

ALTHOUGH many factors related to the causation of urinary calculi are known, no exact ætiology is yet clear. It is important therefore to report any observation having a bearing on this matter.

All calculi may be grouped into primary, developing in a healthy urinary tract, and secondary, caused by pre-existing pathological lesions. Primary calculi commonly consist of calcium oxalate, uric acid, urates, or cystine. Although phosphatic calculi are usually secondary and associated with urinary obstruction and sepsis, they are much more often primary than is generally admitted. During the last few years I have observed several such cases. In most of these no cause is apparent, but in some it is only too obvious—namely, excessive consumption of alkalis in the treatment of peptic ulcer. Such therapy is not only dangerous but unnecessary, for the most important part of the medical treatment of peptic ulcer must always be small and oft-repeated meals. This fact is unfortunately little recognised by medical practitioners, who regard the alkaline mixture as the sine qua non of ulcer treatment. Even more unfortunate, however, is the popularity of such therapy with the lay public, who can obtain unlimited quantities without medical supervision. Simply colossal doses are thus often taken.

It is not my object to emphasise the danger of alkalosis; I am interested only in the more obvious effects on the urinary tract. The urine passed by some of these patients is thick with phosphatic deposit. A medical colleague informs me that he has seen numerous ulcer cases in which the urine resembled milk. In such circumstances it is not surprising that phosphatic renal calculi develop. It must be presumed that the constant irritation of the renal calices by the phosphatic deposit leads to the exudation of a little fibrin, which cements the calculus. These changes usually take place in the inferior calyx, to which most of the deposit gravitates. The bland diet with which these patients are also afflicted has some ætiological importance. It is an alkaline ash diet and thus contributes to the alkalinity of the urine, also it may be deficient in vitamin A.

The following two recent cases illustrate the condition.

CASE-RECORD

CASE 1.—A man, aged 30, was admitted to the Manchester Royal Infirmary on Feb. 25, 1939. Since Nov. 4, 1938, he had had several attacks of severe renal pain, sometimes in the right side and sometimes in the left These were associated with vomiting and required morphia for their relief The attack which brought him to hospital was on the left side and started four hours before admission

Previous history —Up to six months ago he had been troubled with epigastric pain for four years This was relieved with an alkaline powder During all this time he took very large doses of this proprietary preparation, usually 3–4 oz a day He noticed that after this medication his urine had a white sediment in it

On admission —General condition good Temperature 100 4° F, pulse-rate 90 Abdomen lax except during attacks of pain, which came on every two or three minutes and lasted only a few seconds Bladder and kidneys not palpable Tenderness in left costomuscular angle No tenderness on right side Patient was given morphia gr ¼ and atropine gr 1/150 This relieved the pain, which did not recur

Blood-urea 26 mg per 100 c cm Urine pH 5 6, a trace of albumin, no sugar Centrifuged deposit contained a few epithelial cells, a few pus cells, and triple phosphate crystals Films showed gram-positive cocci in clumps Cultures yielded a growth of *Staphylococcus albus* (coagulase negative)

Radiography —A plain radiogram showed rather a pear-shaped shadow lying obliquely, with the broad end uppermost, just below the left twelfth rib at the level of the first lumbar transverse process It measured 2 cm in its longitudinal axis and about 1 cm across the base Another shadow of similar shape and with the broad end up was lying near the right ischial spine This measured about 1 0 × 0 5 cm An excretion urogram showed excellent function on both sides and normal calyceal outlines The shadow previously reported could be seen to be lying in the left lower calyx The right ureter was not sufficiently outlined to show its relationship to the shadow seen near the right ischial spine There was no evidence of any back-pressure on the right kidney

Cystoscopy March 6 Low spinal anæsthesia A no 6 F ureteric catheter passed easily up the right side to 30 cm and drained freely Anteroposterior and oblique radiograms showed conclusively that the shadow near the right ischial spine was that of a stone in the right ureter

Operation March 13 Left nephrolithotomy through the usual oblique incision The stone was white, homogeneous, and rather soft, and consisted of ammonium magnesium phosphate

The patient made a good recovery On the 22nd he had a severe attack of right renal colic, which lasted twenty-four hours Next day a stone corresponding to that seen near the right ischial spine on the radiogram was passed This was similar to the one removed from the left kidney and consisted of ammonium magnesium phosphate

CASE 2 —A man, aged 53, was admitted to a nursing home on March 2, 1939 During the preceding four days he had been having repeated attacks of severe right renal colic He had had a duodenal ulcer in 1918 and had since been under strict medical treatment

On admission he was in severe pain There was tenderness all over the right side of the abdomen and in the right costomuscular angle The urine was alkaline and showed no chemical abnormality It contained numerous triple-phosphate crystals and a few red blood-cells It was sterile on culture The patient's pain was relieved by a hypodermic injection of morphia and atropine

A plain radiogram and an excretion urogram revealed a tiny stone lying at the lower end of the right ureter

In the next two days the patient had two further attacks of severe colic associated with strangury His symptoms then entirely disappeared and did not recur Further radiographic investigation showed that the shadow previously seen had disappeared.

There was no doubt that this patient suffered fron a small right ureteric calculus which was passe spontaneously

DISCUSSION

In case 1 the regular taking of an alkaline mixture associated with an ulcer dietetic regime, was th factor responsible for the formation of primar phosphatic renal stones Although in case 2 the ston was never found, I have little doubt that it wa of the same composition Case 1 had ceased takin alkali a short time before the calculi had started the descent from the kidney, his experience has taugh him to avoid it in future Case 2 still has occasiona ulcer pain and has been advised by his physician t continue medical treatment It is obviously importan for him to drink large quantities of water dail to avoid the formation of further calculi

When phosphatic calculi form in a healthy urinar tract, the urine excreted during the period of the formation always has a high pH It *is not claimed* that all these patients have been subjected to alkaline therapy The alkalinisation often has no discernible cause It is most probably associated with idiosyncrasies of diet or with hereditary metabolic factors The object of this short report is to point out that in some of these cases the consumption of large doses of alkaline powders has an intimate relation to the formation of the calculi and to warn the profession of this danger, which I am persuaded is not generally recognised

My thanks are due to Mr H. H Rayner, under whose care case 1 was admitted to hospital, for permission to report the details

Clinical Notes

PARALYSIS OF THE DELTOID

AFTER INJECTION OF SERUM AND AFTER BLOOD-TRANSFUSIONS

BY R E SMITH, M B Camb, F R C P

MEDICAL OFFICER OF RUGBY SCHOOL, PHYSICIAN TO THE HOSPITAL OF ST CROSS, RUGBY

PARALYSIS of the deltoid muscle is a well known sequel to the injection of serum but is extremely rare after blood-transfusion

1 *Paralysis after injection of serum* —A boy, aged 14, who had been in contact with an early case of scarlet fever, was strongly positive to the Dick test At his father's request he was given 5 c cm of streptococcal antitoxin (scarlet fever) into the gluteal muscles on March 22, 1939 Seven days later he had a very severe reaction an urticarial rash extended over almost the whole body, and this was accompanied by severe pain in the joints especially in the knees and the right shoulder These phenomena quickly subsided, and it was then noticed that the right deltoid and the right triceps muscles were weak The triceps returned to normal in less than a week but the deltoid became temporarily paralysed and wasted. Massage and electricity, coupled with active movements, were instituted at once, and by July recovery was complete He had never had serum previously and never suffered from any allergic disease

2 *Paralysis after blood-transfusion* —The patient was first seen in 1920, when aged 21 suffering from hæmatemesis In 1928 and 1929 he was under treatment for melæna Investigations, especially for peptic ulcer, produced negative results

On Nov. 17, 1930, he had a series of hæmorrhages from the bowels, shown by persistent melæna His hæmoglobin fell to 30 per cent., and he was given a transfusion of 600 c.cm. of blood. Both the patient's and the donor's bloods belonged to group IV. Shortly afterwards he had pain in the right shoulder, and subsequently he developed paralysis and wasting of the right deltoid, which became permanent. The hæmorrhages continued and a gastro-jejunostomy was performed, but no ulcer was detected. At a second operation in 1937 this was undone.

On Jan 16, 1938, he was admitted in a collapsed condition; he said he had had melæna for five weeks and had passed a large black tarry stool the day before admission. Next day he was given 300 c.cm. of blood from a group-IV donor, who, however, was not the previous donor. The serum of the donor did not agglutinate the blood of the recipient. Thirteen days later he complained of pain in the left shoulder. At no time were there any other symptoms of serum sickness—no urticaria, no albuminuria, no changes in the temperature, pulse-rate, or respiration-rate. The pain was severe but did not require morphia. It remained as a dull persistent pain, with exacerbations of severity, especially at night, for just over a fortnight, when it gradually improved. He was put up in an aeroplane splint on Feb. 1, 1938, but this made the pain worse, and the arm was kept outstretched on a pillow. On Feb. 7 the reaction of degeneration was present in the deltoid but not in any other muscles. The deltoid was slightly wasted, and despite massage and electrical stimulation it never completely recovered.

On Oct. 4, 1938, the patient was admitted again, complaining of noises in his chest and of severe precordial pain, and was collapsed. He died in a few hours, and autopsy revealed a normal alimentary tract He had a non-syphilitic dissecting aneurysm with a double channel for the blood extending from within 1 in. of the valves down as far as the common iliac and upwards into the subclavian, with a rupture into the pleural cavity.

The recognition of the possibility of paralysis after serum or transfusion is important, otherwise the new symptom may be attributed to the disease for which the serum was given The patient of Dyke (1918), the first case reported in England, had stiffness in the shoulder-joint on the opposite side of the body from the original cut for which antitetanic serum was given prophylactically, he was then unnecessarily given more serum Diphtheritic paralysis might also be considered, especially the polyneuritic type

Kraus and Beverley Chaney (1937) in reviewing the subject say that cerebral, spinal, radicular, and neural forms of paralysis may be seen after giving serum, but the fifth and sixth cervical nerves are most commonly attacked. Vogel (1935), who could find only 8 instances in the German literature from 1927 to 1935, found bilateral paralysis in 5, and mentions Katz's cases in which the trapezius muscle and the diaphragm were affected In 1 of his own cases, a man amply treated for tetanus, very severe pain developed in the ischial nerve, but no paralysis ensued None had had serum previously.

In the French literature there are over 70 instances, reviewed by Pallais (1936) The brachial plexus was involved in about 60, and of these 47 were on the right The radial nerve was attacked on 4 occasions Besides the paralysis of the plexus, neurological complications were manifested by involvement of nerve trunks and of spinal roots, polyneuritis, Landry's type of paralysis, pseudotabes, and involvement of cranial nerves. Pallais emphasises that the quantity of serum is of little import, and that accidents happened after giving purified serum

Allen (1931) summarised 42 published reports and considered that in 23 of them the distribution was radicular, whereas only 6 were of the neuritic type: 4 musculo-spiral; 1 external popliteal; and 1 bilateral sciatic. Polyneuritic symptoms were present in 7 cases, and 6 had central involvement. It is certain that many of the cases quoted by Pallais in which the deltoid was involved were regarded by Allen as radiculitis and not as a peripheral neuritis

Sensory changes have been noted on many occasions. An accurate estimation of the area of hyperæsthesia or of anæsthesia should show whether the circumflex nerve or the fifth and sixth of cervical roots are involved.

In my first case the question arises whether the circumflex nerve might have been stretched by an effusion into the shoulder-joint. In the second case it seems impossible to connect the paralysis with the post-mortem findings.

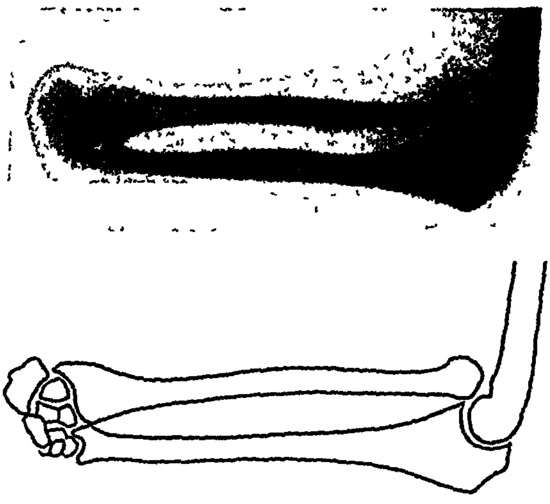
REFERENCES

Allen, I. M. (1931) *Lancet*, 2, 1128
Dyke, S C. (1918) *Ibid*, 1, 570.
Kraus, W. M., and Chaney, L. B (1937) *Arch. Neurol Psychiat. Chicago*, 37, 1035.
Pallais, J. E (1936) *Marseille méd* 73, 7.
Vogel, P. (1935) *Nervenarzt*, 8, 11.

INTRA-UTERINE AMPUTATION

By A. P. Bertwistle, F R.C.S.E.

This case is recorded not only on account of its rarity but also as an example of how extraordinarily useful a deformed limb may be, when present from birth, compared with a limb subjected to amputation in adult life—e g, war wounds. The condition was seen in the left arm of a middle-aged man; there was no deformity whatever in his grandparents, parents, two brothers, or sister. He was a keen cricketer, using his deformed arm to steady the bat, played hockey with success, changed the gear lever of his car with this stump, and swam, but this was somewhat awkward because he tended to swim in circles He used his deformed arm with consummate skill in tying his tie and lacing his shoes In turning over the leaves of a book he would push the book with his sound hand against the stump. There was absolutely no trace of the tenderness so often found in surgical amputation. He tried an artificial limb at one time but gave it up almost at once.



Showing the left forearm after intra uterine amputation.

Examination revealed that his left forearm was 1½ in. shorter than his right and the same amount less in circumference at the wrist Although the skin of the end of the stump and of the upper part of the forearm was normal, that of the lower part of the forearm was flabby, red, unhealthy, and the site of chilblains in winter The end of the stump was supple and well covered, at the time of examination there was no suggestion of a scar, but he remembered having one in his younger days The elbow-joint was freely mobile, hyperextension being easy, the radial head moved freely round the joint The radiogram, kindly taken for me by Dr H L Groom, reveals an almost normal first row of carpal bones but considerable changes in the second row, no trace of metacarpus is seen The head of the radius is subluxated (see figure)

Points indicating intra uterine amputation are (1) the absence of the condition in any other member of the family, (2) the normal first row and not grossly abnormal second row of carpal bones differ from a congenital deformity of the usual type, and (3) the presence of a scar in early life suggests that the umbilical cord cut off the hand somewhat late, for these amputations, done under perfectly aseptic conditions, leave no scar if performed early

REVIEWS AND NOTICES OF BOOKS

Pathology

An Introduction to Medicine and Surgery By J HENRY DIBLE, M B Glasg, F R C P, professor of pathology in the University of London at the British Postgraduate Medical School, and THOMAS B DAVIE, M D Lpool, M R C P, professor of pathology in the University of Liverpool London J and A Churchill 1939 Pp 931 30*s*

IN this book the authors aim at presenting pathological changes as a series of processes going on in the living body The patient is watched throughout his illness and the signs and symptoms of disease are shown in the light of pathological knowledge Another unusual feature is the book's scheme of presentation The convention of dividing pathology into general and systematic, or of dealing with it on a purely regional basis, has obvious advantages but the story often becomes static and disjointed The compromise chosen by Dible and Davie is a good one and makes for better understanding When the gross effects of an organism are the same no matter which system is involved then all conditions due to that organism are described together But when different infecting agents cause roughly similar lesions (as in the case of pneumonia) then these are dealt with regionally

The great difficulty in the teaching of pathology is that understanding is only possible at the end of the medical curriculum when much important knowledge has been forgotten The authors have tried to tackle this difficulty by including much that is relevant but not strictly pathological Thus most of the commoner bacteria and viruses are described and there are many physiological, clinical and biochemical details The price is a bigger book, but the reward is that pathology becomes both more understandable and more interesting Many of us were brought up on didactic textbooks in which the principles of medicine seemed to be rather dull if eternal truths This book takes the student into confidence and shows how the body of pathological knowledge has been built up by human effort The historical approach has been well used and is both stimulating and enlightening It is a pity that the writing is sometimes careless and not always free from fustian We do not believe it helps clarity to say that staphylococci "pullulate" in the depths of a boil Most of the illustrations are admirable and it is a pleasure to see diagrams and charts which really illustrate a point

As to the subject matter one is disarmed by the note in the preface that the book is not a repository of information but an introduction for students One may suggest however that tumours of the lung, dealt with in one third of a page, are more important to students than hæmochromatosis which is given three times that space We do not believe that competent bacteriologists would agree with the much repeated saying that staphylococci, *Bacillus coli and Bacillus proteus* are the important common invaders of the bladder *B coli* is the important common invader, the others are comparatively rare Nor are we quite at ease with the statement, even when qualified, that complement is the lytic substance in hæmolysis or bacteriolysis These are small points and probably inevitable in a book which covers so much ground The sections dealing with pure pathology are the best in the book and the descriptions of inflammation and tuberculosis are particularly well done The information on almost every subject is reliable and up to date

Varicose Veins

By ALTON OCHSNER, M D, F A C S, director of the department of surgery, School of Medicine, Tulane University, Louisiana, and HOWARD MAHORNER, M D, M S, F A C S, assistant professor of surgery in the university London *Henry Kimpton 1939 Pp 117 12s 6d*

IT is now being realised that the treatment of varicose veins is not so simple after all, and that injection alone gives permanent results only in the less severe cases The chapter on the history of the treatment of varicose veins in this excellent monograph not only illustrates some of the brutalities perpetrated in the past in the name of surgery for this condition but also brings out the extraordinary inveteracy with which varicose veins tend to recur The authors describe the anatomy of the superficial veins of the leg adequately and the "physiology" of the perverted varicose-vein circulation, though in their subdivision into clinical types some of the more difficult types are not mentioned Their scheme for the examination of a case is most thorough, and their three tourniquet test for deciding the appropriate treatment is greatly superior to the Perthe and Brodie (Trendelenburg) tests which have been so long in use Treatment by a combination of ligations of the saphenous vein and injection is gone into in detail The final chapter on varicose ulcers is not so full, and it is regrettable that excision of the ulcer and surrounding scar with full thickness skin grafting is advocated, for just as good results can be obtained without major procedures of this kind However, there will be few of such ulcers if varicose veins are treated in the first place by the methods here advised.

Les occlusions arterielles aiguës des membres

By H. HAIMOVICI, assistant in the Faculty of Medicine, Marseilles Paris Masson et Cie, 1939 Pp 121 Frs 20

As a review of recent work this monograph is a failure, for some important work is not mentioned and references are too scanty As an exposition of the author's views it is inadequate since little evidence is adduced in their support This criticism applies especially to the statements about vascular spasm and inflammation of the adventitia acting as a focus of sympathetic irritation: these the author regards as essential features of the pathology of acute arterial occlusions Few would deny that spasm is important, but that spasm alone can cause arterial occlusion is a statement that requires proof. The causes of occlusion and the difficulties of differentiating them are clearly discussed and this part of the book contains less disputable matter than the rest. The pain of embolism at its site and moment of impaction is mistrusted by the author although not rejected. This idea dies hard in spite of the work of Lewis and Pickering. The statements as to progress are not in accord with experience in this country, where gangrene is the exception and not the rule. A variety of medical and surgical remedies are discussed but no straightforward plan of treatment is proposed Such operations as lumbar sympathectomy are out of the question in most arterial occlusions, yet this step is advised as an adjuvant of embolectomy or arterectomy! No mention is made of heparin This is the more regrettable since heparin seems likely to modify the whole treatment of embolism and to make operation much less chancy than it is at present. It is very expensive—but so are artificial limbs.

Diagnosis and Treatment of Diseases in the Tropics

By H. C. Tolwell, M.D. Lond., M.R.C.P., lecturer in medicine, Uganda Medical School. London: Baillière, Tindall and Cox. 1939. Pp. 205. 2*s.* 6*d.*

Tropical Hygiene and Sanitation

By H. Jordan, A.R.San.I., instructor of hygiene, Uganda medical service. Same publishers. 1939. Pp. 388. 5*s.*

These little handbooks are the third and fourth of a series written primarily for Africans in the subsidiary grades of the native medical services, and the author's aim has been to include only what experience shows such students can understand and what is sufficient to fit them to follow their profession with intelligence and interest. The first opens by considering the general principles, and symptoms and signs of disease from the broad viewpoints of physiology and pathology. After this come various sections in which all the more important tropical diseases are described systematically and with sufficient detail for the purpose in view. The second volume has been specially designed for Africans training for the sanitary certificate of the Royal Sanitary Institute. It covers the general principles of sanitation, building construction, refuse disposal, the hygiene of food-supplies, communicable diseases and the relationship of animal parasites and vectors to disease. Both books are clearly written and suitably illustrated; they are both handy and inexpensive. They should prove most useful, not only to those for whom they were written, but also to all nurses, dispensers and health orderlies throughout the tropics.

British Journal of Surgery

The October issue (vol. 27, no. 106) contains the following articles:

The Effects of Radium upon Carcinoma of the Breast. By J. Paterson Ross (London) A comparison of the late results of radical mastectomy with those of radium implantation, followed 3–6 months later by local amputation, suggests that radical mastectomy is safest in the early stages of a growth, but that radium gives a larger number of five-year cures in the later stages. Differences in the radio-sensitivity of various histological types has been demonstrated.

Distribution and Treatment of Extra-articular Foci in Tuberculous Arthritis of the Hip-joint. By J. A. Cholmeley (Stanmore). In a review of 55 clinical histories of children, seen first at a stage when osseous foci had not infected the joints, it is shown that in only 10 per cent did the joint remain intact. Operative excision of the foci did not improve the prognosis.

The Causes of Relapse following Sympathectomy of the Arm. By H. T Simmons (Manchester) and Donal Sheehan (New York). The conclusion drawn from 67 operations are that preganglionic section is more satisfactory than ganglionectomy, that both operations are liable to relapse, and that the main cause of relapse is regeneration of vasoconstrictor fibres

Actinomycotic and Mycotic Lesions. *With special Reference to Madura Foot.* By B. P. Tribedi and B. N Mukherjee (Calcutta). A total of 32 cases, most of them affections of the foot, are reviewed. In 3 recent cases, studied in detail, the difference in the tissue reaction in the two infections has been demonstrated, and also the melanotic appearance of the mycetoma

Silent Hypernephromata. By Michael J. Smyth (London). Two cases are described of metastases—one in the scalp and one in the cerebellum—in which symptoms of renal disease were entirely absent. The cerebellar tumour and its primary hypernephroma were successfully excised.

Raised Intracranial Pressure: Hydrocephalic and Vascular Factors. By Hugh Cairns (Oxford) Among the subjects discussed are the importance of blocking of the tentorial opening, and consequently of the subarachnoid space, by displacement downwards of the brain substance; and the bearing of acute cerebral œdema of raised cerebral venous pressure, and of inhalation of carbon dioxide.

Congenital Diverticulum of the Common Bile-duct. By Sir James Walton (London). The condition is extremely rare, but the author has seen 6 cases Of 5 treated by anastomosis between the duodenum and the diverticulum 4 did well, and 1 died Operative treatment is advised. The literature is reviewed, and it is concluded that the cause of the condition is a congenital weakness of the lateral wall of the duct, obstruction following as the pouch enlarges.

Chronic Ulceration of the Greater Curvature of the Stomach. *With a case report.* By R Shackman and F H. Kemp (Sheffield). Attention is drawn to the extreme rarity of ulceration at this site Because malignancy is to be suspected, radical operation is advised in every case, unless medical treatment results in progressive and complete healing.

The Benign Fibro-osseous Tumours of the Skull and Facial Bones. By Kenneth C. Eden (London) A relationship is traced between fibrous epulis, ossifying fibroma, localised fibrous osteoma, ivory osteoma and leontiasis ossea (diffuse osteoma). Trauma and infection are discussed as causative agents Conservative treatment is advised

Pathology, Diagnosis and Treatment of Hashimoto's Disease (*Struma Lymphomatosa*). By Cecil A. Joll (London). The account of the disease is based on 81 hitherto unpublished cases The distinction from Riedel's disease is established The disadvantages of resection and the value of radium is discussed

Fractures of the Lower Leg A method of Reduction and Immobilisation. By D. Lang Stevenson (Liverpool) *Extension is applied through the os calcis, with the limb flexed at the knee and the leg hanging vertically from* the end of the table

Studies in Pneumonectomy and the Development of a Two-stage Operation for the Removal of a Whole Lung. By F. Ronald Edwards (Liverpool). Animal experiments have been carried out, mainly on rabbits It has been shown that shock is produced by noxious stimuli from the parietes, the extrapleural tissues and the pulmonary blood-vessels, and that all other tissues are insensitive The changes in the disposition of the thoracic organs and in the blood has been studied; and the indications for a two stage operation are discussed.

There is also an appreciation of the late Prof Archibald Young, and notes on some rare and obscure cases

THE LANCET

LONDON SATURDAY, NOVEMBER 25, 1939

INSOMNIA

It is safe to assert, though difficult to prove, that since the war the average adult in Western Europe has smoked much more and slept much less than he did before For over smoking and sleeplessness are two of the most inseparable associates of anxiety And just as many have had to take to a cheaper brand of tobacco, so still more have had to be content with an inferior quality as well as a smaller quantity of sleep There is much difference of opinion as to whether lack of sleep gives rise to any significant mental and physical disturbances KLEITMAN,[1] in his well known experiments, did not find it so, and the few definite effects that have been reported as the result of three or four days without any sleep at all could soon be got rid of by a single relatively short period of sleep On the other hand, those who have seen a whole population deprived of its sleep by air raids, as was occasionally the case in Barcelona, thought that this was among the happenings which most upset the morale of the people They came to the conclusion, confirmed by the experience of many combatants during the last war, that it was more important to ensure regular sleep than a feeling of security for people during a bombardment, though it was best to give them both It may be inferred that the concurrence of anxiety and sleeplessness is far more disturbing than either alone and that each reinforces the bad effects of the other Observations made in the laboratory on subjects free from anxiety are not, therefore, necessarily applicable to the population of a city liable to air raids When one has mistaken a motor car toiling up the hill for an air raid warning, one does not fall asleep again as readily or as soundly as if one had been woken by rain pattering on the roof There are no doubt many people now who sleep more lightly than they used to, and many whose insomnia has been severe enough to drive them to seek medical advice

The management of such patients will follow much the same lines as in calmer days KARNOSH[2] has lately re stated them He urges the need for reassuring the patient, who may have come to believe that insomnia will sap his vitality and even lead to insanity Since everyone thinks he lies awake longer than he really does, the doctor should not take it for granted that the condition is as severe as it seems, nor that special measures are called for because the patient feels his sleep is more shallow and fitful than formerly Simple psychotherapeutic measures may lighten the patient s anxiety about the topics that crowd on his mind when he is preparing for sleep Often the overt anxiety is a cloak for fears which can only be discovered and removed by psychiatric investigation Muscular relaxation, an essential preliminary to sleep, may be difficult for such people, and training in this may have good results, especially when the patient can also spend up to half an hour in a bath at body temperature before going to bed KARNOSH holds that an afternoon nap is beneficial to sleepless people, in that it teaches them to relax their muscular tension and may give them confidence, he does not believe that it shortens the sleep they get at night He is opposed to sedatives except as an adjunct to psychological treatment, and he employs only those drugs which act speedily and intensely enough to obliterate the phase of anxious preoccupation after going to bed He insists on the usual precautions, such as that the patient should not be told what sedative he is being given and that the dose should gradually be reduced without his knowledge For one type of sleeplessness he advocates a drastic method he has found that convulsions induced by Cardiazol will put an end to the insomnia of a manic patient, or of one with agitated melancholia

For the common types of insomnia, MAURER and his colleagues[3] have tried a curious procedure They gave large daily doses of ascorbic acid to over a hundred patients suffering from insomnia of various causation, and found that it regularly produced sound sleep with no undesirable aftereffects This normal sleep persisted in their patients for a week or more after the treatment had been discontinued Here one may recall that an increased "need" for vitamin C has been demonstrated in fevers, thyrotoxic conditions,[4] where is disappears after thyroidectomy, and chronic alcoholism,[5] all of which are frequently accompanied by insomnia Whether there is a similar increase in anxiety states we do not know Meanwhile there would be no harm in trying vitamin C empirically for sleeplessness though it remains to be seen whether it will help the man who cannot sleep by fear of the bomber overhead or the wolf at the door

A CHARGE OF MURDER

A MEDICAL man stood his trial at Nottingham last week on a charge of murdering his wife He came home on the evening of Sept 1 after listening at a friend's house to the wireless news of the German invasion of Poland, and an hour or so later visited an A R P post near by to draw attention to improper lights When a maidservant entered the house next morning he found a notice warning about gas and requesting that the police should be sent for The wife was dead from carbon monoxide poisoning and had received an intravenous anæsthetic before her death the husband was unconscious but still living and on his recovery after hospital treatment he had a gap in his memory for what happened after reaching home from the friend's house

---

[1] Kleitman N, *Physiol Rev* 1929 9 624

[2] Karnosh L J, *J Amer med Ass* Sept 30 1939 p 1322

[3] Maurer S, Wiles H O, [illegible] *Illinois med J* 1939 76 [illegible]

[4] Lewis R A, *Bull Johns Hopk Hosp* 1938 63 31

[5] Alexander L, *Arch Neurol Psychiat* 1938 40 58

From evidence given at the trial we learn that as a youngster of nineteen the doctor had served seven months in France, sharing in strenuous fighting and experiencing the sight of wholesale slaughter. On one occasion he had passed into a state of fugue in which he left an ambulance that was taking him to the base, slightly wounded and probably in a disturbed mental condition, and arrived back at his unit unable to account for his actions in between After the war he qualified in medicine and obtained a post in a west-country hospital, but within a few days he behaved curiously in giving an anæsthetic and had to give up the post A medical witness explained that the incident was the expression of a phobia concerning anæsthetics, probably of war origin, of which the accused was still aware though, as often happens in such a case, he had no recognition of its nature and had no memory of the specific incident He finally found his niche in industrial work, making many contributions to the literature of industrial medicine as well as showing keen interest in sociological matters, and gaining the respect and affection of his colleagues. In his own evidence he told how a few years ago he opposed A.R P. work as tending to foster the war spirit, but finally accepted it as necessary and worked at it energetically. It had the effect, however, of stirring up the old horrors of war, and while carrying on his duties with an efficiency acknowledged by all he was constantly obsessed by terrible imaginings described by himself as, for example, "dragging youngsters out of shambles" A curious incident happened while he was awaiting trial He was visited by the medical officer of another prison who chanced to ask whether he remembered turning on the gas There had been an escape of gas in the prison hospital and the smell had produced in him what he described as "a disturbing sense of something very important" When he went to bed that night the smell of gas returned to him and he found himself getting very upset, the emotion increased and there suddenly came to him a recollection of his wife's body and a sensation of terror that she should suffer any mutilation. A few other disconnected pictures followed which he recognised as a real reproduction of events, but there returned no consecutive memory of the tragedy His emotional state was such that the medical officer was sent for, and it is noteworthy that all the medical witnesses agreed that this episode was proof of the genuineness of the loss of memory, though the loss of memory was the only statement of fact by the accused which cross-examining counsel sought to shake

The accused was a highly strung and over-conscientious man, with a keen sense of his obligations to his fellows Witnesses testified to his affectionate relations with his wife, and it was clear that his war experiences, acting upon a susceptible temperament, had set in train a mental development which reached a crisis with the recognition that we were again to be plunged into war. On the day of the tragedy he had written letters referring to plans about his professional future, and everything pointed against premeditation. After he had heard the news that war seemed inevitable some rush of emotion had taken possession of his consciousness, and shutting out all other considerations had driven him to the final tragedy. There was an attempt on the part of the defence to take up a line independent of the McNaghten rule and to obtain an acquittal irrespective of its principles. It failed, however, but the expert medical witnesses, not all of whom approached the case from identical points of view, agreed that the accused was, during that altered state of mind in which the act was carried out, not capable of recognising that what he did was wrong. The jury decided that he was "guilty but insane" The verdict sounds harsh, but it will, we hope, result at no distant time in the restoration to a useful life of one whose misfortune it was to be too sensitive to the horror and beastliness of war.

PROFESSOR HEYMANS AND THE CAROTID SINUS

THE award of the Nobel Prize for medicine to Prof CORNEILLE HEYMANS of Ghent will give great pleasure to his many friends in this country. Since the last war there has been a close collaboration, perhaps greatest among the physiologists, between medical scientists in Belgium and in Great Britain The last twenty years have witnessed an unparalleled flowering of Belgian scientific genius, and none has done more for this than HEYMANS

His work, summarised in several papers,[1] deals with the sensory zones at the carotid bifurcation and in the aortic arch, their part in the control of the circulation and respiration, and their involvement in drug action. The functions of the aortic or depressor nerve were cleared up long ago by CYON and LUDWIG and later by BAYLISS, ANREP, STARLING and many others. Their essential findings were that when the arterial pressure rises in the aortic arch (and perhaps also in the left heart) impulses ascend along the aortic nerve to the medullary centres, reflexly producing cardiac slowing, diminution of cardiac output, and widespread peripheral vasodilatation. Conversely, when the arterial pressure falls, the aortic receptors are less active, and this leads to increased cardiac activity and vasoconstriction These reflexes are working all the time and thus help to keep the arterial pressure and heart-rate within normal limits A number of researches suggested that similar responses might be produced by variations in the carotid-cerebral vascular circuit. The real significance of these observations was brought out less than twenty years ago by the experiments of HERING and KOCH in Cologne, and of HEYMANS and his colleagues in Ghent and the beautiful histological investigations of DE CASTRO

The carotid sinus is a dilatation of the bifurcation of the common carotid artery, mainly at the origin of the internal carotid. The adventitia here is richly supplied with sensory endings of the type found between tendon fibres, they are undoubtedly pressure receptors, responding to pressure changes inside the arteries. The sinus is connected with the central nervous system by a distinct group of nerve fibres—the carotid sinus nerve. By special techniques the carotid sinus regions, with their innervation intact, can be isolated in situ from the circulation, the sinuses can then be perfused from a pump or another animal. Such experiments show that the carotid-sinus receptors are exquisitely sensitive to minute internal pressure changes, reflexly producing (as do the aortic nerves) circulatory alterations tending to maintain the normal equilibrium. It later became clear that the pressor-receptors in the sinus and aortic zones constitute a physiological entity with a common physiological function. Their importance as "buffers" is well shown by the results of their excision, with the release of the circulatory centres from the normal regulating controls there is a great rise of arterial pressure and of heart rate, severe cardiac irregularity (sometimes proving fatal), and an excessive excretion of adrenaline. Under suitable conditions a chronic arterial hypertension may be produced by these means, but there is no reason to suppose that it is related to any clinical form of hypertension.

---

[1] Heymans, C Le Sinus Carotidien, Paris, 1929; *Ergeb Physiol* 1929, 28 241, *New Engl J Med* 1938 219 147 Heymans, C, Bouckaert, J J and Regniers, P, Le sinus carotidien et la zone homologue cardio-aortique Paris, 1933, *Irish J med Sci* October, 1939, p 717

Admittedly this account does not exhaust even in outline the functions of the sino aortic nerves. A rise of arterial pressure in these vaso-sensory zones may reflexly inhibit respiration, modify abdominal visceral activities, and even induce a condition indistinguishable from normal sleep, the afferent impulses must, therefore, radiate widely in the central nervous system. Conversely a fall of sino aortic pressure reflexly stimulates breathing. The sino aortic zones also play a part in adjusting respiration to normal and abnormal chemical stimuli as HEYMANS and his school first showed. When the trunk of an animal (in which all circulatory connexions between the trunk and the head are severed) is asphyxiated, afferent impulses pass up from the trunk to the respiratory centre in the perfused head reflexly stimulating breathing, the receptors concerned are not situated in the lungs but in the aortic region. Extending these researches, they found that chemo receptors—sensory endings which are acted on by changes in the chemical composition of the blood—are also present round the carotid sinus. Anatomical considerations suggested that the presso-receptors and chemo receptors were probably quite distinct, and experiments have now proved that the chemo receptors are situated in the carotid body and in the more recently described aortic body. In these structures specific epithelial cells and nerve fibres are in close relation with the circulating blood, this presumably enables them to serve as sensitive detectors. The action of changes of CO_2 tension and of pH on breathing is partly due to a direct effect on the respiratory centre and partly to a reflex from the vascular chemo receptors. The action of oxygen lack on breathing is more involved. The direct effect of anoxia on the respiratory centre is purely depressant, but the reflex effect from the chemo-receptors is purely excitatory. The net result will depend on the balance struck between these two conflicting forces. HEYMANS also showed that the carotid-aortic chemo-receptors are affected by pharmacological substances. Cyanide, nicotine lobeline, acetylcholine and many other drugs act on these receptors producing a reflex hyperpnœa. Small doses act almost exclusively reflexly, the concentration being without action on the isolated respiratory centre. Chemo receptors have been found also to influence the circulation reflexly.

These are only the high lights of a fruitful series of researches. Their details will be found in the writings of HEYMANS and his followers themselves. Already their work has shed light on the cardiac and other forms of dyspnœa, on syncope and on circulatory failure. There is little doubt that a still richer clinical harvest will be gathered in the future.

ANNOTATIONS

ANOTHER KIND OF BLACKOUT

ONE of the most alarming results of modern high-speed flying is transient blindness known as blacking out or amaurosis fugax, which is brought about by sudden change of direction as in making inside or outside loops or when power diving. In the modern fast plane capable of more than 300 m.p.h. the forces exerted on the pilot during such manœuvres are enormous and may range from 5 to 10 times the value of gravity. In a loop of 300 yards radius at 300 m.p.h. the value of G becomes 1.9, and the U.S. Army in testing its planes require a maximum stress of 9 G.[1] This is in effect a ninefold increase in weight which may suddenly be applied to the plane and pilot. Forces which meet the pilot in a straight anteroposterior or lateral direction while in flight do not have the same dramatic results as when accelerating in a curved path. Here the body may be subjected to a centrifugal force with the head inwards or less frequently outwards. A force of more than 5 G causes a diminution or loss of vision, rapidly followed by loss of consciousness, which may last for 1–20 seconds. The severity of the symptoms is related to the size and duration of the force, and there is now little doubt that many of the changes are due to the centrifugal removal of blood from the brain. Nevertheless, this does not account for everything and there are wide variations in the individual pilot's ability to withstand the stress. Rook and Dawson[2] working in this country on hypotensive pilots concluded that this ability to withstand stress depends on the power of the cardiovascular system to adjust itself to the abnormal forces encountered. Animal experiments in Germany using centrifugal force with the head inwards have demonstrated exsanguination of the cerebrum and even of the heart with dilatation of the abdominal vessels, the pressure in the carotid artery falls to zero. When centrifugal force acts with the head outwards great pain is felt in the eyes and head, conjunctival hæmorrhages occur, and long sustained mental confusion may result from cerebral engorgement.

---

[1] Phillips, R. B. and Sheard, C. *Proc. Mayo Clin.* Sept. 27, 1939, p. 61.

[2] Rook, A. F., and Dawson, D. J. *Lancet*, 1938, 2, 1503.

Whether the blindness is due to retinal ischæmia or to vascular alterations in the visual pathway has not yet been determined, but Livingston[3] has brought forward evidence against the theory that ischæmia results from occlusion of the retinal arteries by the positive intraocular pressure, since this is unchanged by the centrifugal action; he suggests that the maximal alterations take place in the neighbourhood of the external geniculate bodies and in the area striata.

Many devices have been used to counter the effects of centrifugal force upon the pilots. Apparatus designed to transfer the centrifugal force in a vertical column of water into a distensible belt around the abdomen, tight clothing, sliding seats, alterations in posture, to make the change in force lateral or antero-posterior, and forceful yelling when diving or looping are all effective when the stress is small. It is significant that all the more effective procedures have in common a tendency to prevent flooding of the visceral vessels at the expense of the cranial blood-supply.

CHEMOTHERAPY OF INFLUENZA

THE sulphanilamide group of drugs has so far proved effective in only two virus diseases, lymphogranuloma and trachoma. In both conditions there is some doubt as to whether the infecting agent may be classed as a true virus. They have met with little success in experimental influenza infections, although Oakley[4] demonstrated a slight effect on mouse infections with one of the sulphone compounds, and Levaditi described a slight effect with a closely related substance. Chmenko, Crossley and Northey[5] have now published mouse experiments with the Puerto-Rico strain of human influenza virus which show a very much better therapeutic result with the sodium salt of a compound $(NH_2C_6H_4SO_2)_2NH$. This compound is described as disulphanilamide, but as the name has been given to another compound of different constitution by Rosenthal the term may lead to some confusion. These workers claim that the mortality of mice is reduced from 98 to 2 per cent. by subcutaneous treatment with this salt, and oral treatment is almost as effective. The salt has a very low toxicity, lower than that of sulphanilamide itself, 1·5 g. per kg. could be given to mice daily for 16 days without any sign of toxicity. This work, if it is confirmed, raises the possibility of influencing virus diseases with these drugs, and it seems that very soluble derivatives may be required. As a number of these are now available, we may hope that the work may soon be extended, and in view of the great differences between strains of influenza virus it is important that it should be repeated with other strains.

Experiments with M. & B. 693 in mouse infections with *Hæmophilus influenzæ* have been described by Pittman.[6] Interest in this infection was aroused by the favourable response of a baby suffering from pneumonia, from whom this organism was recovered; within 24 hours of the exhibition of the drug the child showed definite improvement, followed by a rapid recovery. Mice were infected intraperitoneally with approximately 100 minimum fatal doses of culture suspended in mucin. The drug was given half an hour before the infection and at various intervals afterwards, and complete protection was obtained with a dose of 8 mg. of the drug. Smaller doses had a slight effect but did not give complete protection. The drug did not prevent invasion of the blood-stream, but after 3 hours the treated mice showed fewer organisms in the blood than the controls. This is analogous to the effects already observed in other bacterial infections.

DRINK MORE MILK

IN the last of its reports[1] on the nutritive values of raw and pasteurised milk the Milk Nutrition Committee gives a full account of its large-scale trial of the effects of giving various milk supplements to children at school (an interim report had previously been issued) and summarises the results of its earlier experimental work on animals. It withdraws from the field with the broad conclusions that the generally accepted value of milk to growing children has been abundantly confirmed by its work, and that apart from infants who might be fed exclusively, or almost exclusively, on cow's milk there are no nutritional differences of any practical importance between the raw and pasteurised varieties. The second deduction is based on both the animal and human feeding experiments.

In the human experiments some 8000 school-children from five different areas participated, being initially divided at random into four groups to receive, over one year, a daily ration at school of (1) biscuits, (2) a third of a pint of pasteurised milk, (3) two-thirds of a pint of pasteurised milk, and (4) two-thirds of a pint of raw milk. All children were periodically examined, measurements being made of their physique as well as assessments of their state of nutrition, intellectual ability, and of such features as their posture and complexion. These latter features were found to give quite indeterminate results and no differences which could be interpreted in favour of one feeding group over another. On the other hand, the general trend of the detailed figures, set out in thirty tables, shows that the children on the milk supplements increased in height, weight, chest-dimension and strength of pull to a greater extent than those given biscuits, and also improved more distinctly both in their clinical state of nutrition and in the teachers' assessment of their ability. In addition, those on the larger milk supplement showed usually an improvement over and above those on the smaller, while there was no consistent difference between those on equal supplements of raw and pasteurised milk. The actual advantages of the milk drinkers over the biscuit eaters, though significant and uniform, were, it may be noted, quite small—for instance, less than 1/10 in. in height and ¾–1 lb. in weight over the entire year. These differences are less than those observed by some previous workers and may be a reflection of a higher standard of living in the home today, leaving less scope for the influence of supplements.

Such an experiment as is reported here suffers from an inevitable lack of control over the home diet. The child given milk at school may for that reason not be given it at home, whereas the one given biscuits at school may be more likely to get milk at home. This difficulty carries less weight in the comparison of the different types of milk, and from the standpoint of public health the conclusion that supplements of raw and pasteurised milk give effectively equivalent results is clearly of much importance and more impressive than if it were based only on the animal feeding experiments. Unfortunately it was found impossible to obtain sickness data for the different feeding groups. Such figures would have been of much value in view of the claims that are being made as to the reduction of sickness absenteeism in those factory workers who take their daily milk.

---

[3] Livingston, P. C., *Brit. J. Surg.* 1939, 26, 749.
[4] Oakley, C. L., *Brit. med. J.* 1938, 1, 895.
[5] *J. Pharmacol.* 1939, 67, 201.
[6] Pittman, M., *Publ. Hlth Rep., Wash.* 1939, 54, 176.

[1] Milk and Nutrition, Part 4. The effects of dietary supplements of pasteurised and raw milk on the growth and health of school-children (final report), summary of all researches carried out by the committee and practical conclusions, 1939, National Institute for Research in Dairying, Shinfield, Reading. Pp. 70. 2s.

TUBERCULOSIS IN DENMARK

THE statistics of tuberculosis in Denmark, where the disease has been notifiable since 1905, have been subjected to a close scrutiny and analysis by Lindhardt.[1] Confining her attention to the decade 1925–34 her material related to 39,379 notifications of new cases and 20,173 registered deaths. Relating these figures to the population of the country gives an annual case-rate of 11.1 per 10,000 persons living and a death-rate of 5.7, pulmonary tuberculosis accounting for 5 per cent. of deaths from all causes. Division of the period into the two quinquennia reveals a distinct improvement in both incidence and mortality, the latter being 19 per cent. less in 1930–34 than in 1925–29 and the former 15 per cent. less. Contrary to the experience of this country, the decline in mortality *appears to* have been fully shared by adolescent and young adult females. The scope for further improvement at these ages is, however, shown by the fact that at ages 20–24 the total death-rate of females from all causes was 2.6 per 1000, from pulmonary tuberculosis it was 1.2, or nearly half the total mortality. Denmark conforms to rule in having higher rates in its towns than in the country, but its case- and death rates are both higher in females than in males and at nearly every stage of life.

The seasonal curve of notification shows its maximum from April to June and its minimum in December, the peak for females being especially distinct. The death-peak falls rather earlier, from March to April, and its minimum in October. The young and old appear to be most susceptible to such seasonal influences, but females of every age reveal a maximum in May. As in this country, those employed in farming enjoy relatively low rates. Attention is drawn to high morbidity- and mortality-rates (especially the former) amongst newly qualified physicians and medical students. Here early recognition of cases perhaps plays a part.

PERIPHERAL INJURY TO THE FACIAL NERVE

RECOVERY from a peripheral somatic motor nerve injury is often accompanied by associated movements of the muscles supplied by the nerve. In addition, during the very early stages of recovery, the paralysed muscles take on an added plumpness, and the patient also becomes aware of local sensations difficult to describe but resembling muscular contractions, although these are not visible. Hunt[2] believed that the function of motility in skeletal muscle is resolvable into two components—the movement proper, and the more passive form of contractility underlying postural tone. The histology of striate muscle appears to support this view, for two distinct types of contractile substance are present, also two kinds of nerve-ending and nerve fibre (medullated and non-medullated).

While Ballance and Duel[3] were working on their method of grafting a divided facial nerve, they became interested in the clinical phenomenon of associated movements during and after recovery of function of the nerve. Much experimental work was performed on monkeys, and these animals also develop facial myoclonus, sometimes severe. Ballance[4] removed the motor cortex of the facial area from several animals and declared that there was a change in the pyramidal cells on the side opposite to the divided nerve, inferring that the cause of the myoclonus is central. However, Duel extirpated similar areas (even the whole hemisphere), allowing the animals to recover, and found that the myoclonus persisted. In two cases he removed both cerebral hemispheres; neither animal recovered completely from this operation and the facial tic was difficult to elicit, but the associated movements continued on the side of the peripheral nerve lesion. He could not find any definite histological change in the motor cortex. Again, in two patients with a severe tic, he performed a second operation and graft, but with recovery of the nerve the tic reappeared. The work was carried on with the assistance of Howe and Tower[5] and more attention was paid to the peripheral portion of the nervous pathway. Two main branches of the nerve supplying respectively the eyelids and lips were isolated and divided. The proximal end of each was sutured to the peripheral end of the other. Recovery of innervation was not accompanied by associated movements or myoclonus. When the proximal end of the branch to the eyelids was united to the peripheral end of the branch to the lips an associated movement of the latter occurred when the normal eye was blinked. The eyelid muscles also partly recovered their function, taking considerably longer to do so. It seemed more reasonable to suppose that the paralysed muscles were innervated by new twigs from unparalysed nerve trunks than that neurofibrils had grown from the cut nerve stump across the intervening tissue spaces, a distance often of 3 to 4 c.cm. However, blinking of either eye was then accompanied by contraction of the lip muscles. Stimulation of the eyelid areas of the motor cortex on either side provoked a similar movement and the thresholds for these cortically excited performances were equal on the two sides, excluding central hyperexcitability as a factor. In another series of experiments the trunk of the facial nerve on one side was injured and allowed to recover. The animals then all showed obvious associated movements and myoclonus. At this stage, several peripheral branches were isolated on each side and a typical trunk on the abnormal side was divided together with its counterpart on the other. Mild faradic stimulation of the peripheral ends of these trunks was found to innervate a similar localised area on each side. Stimulation of the proximal ends of the trunks, however, revealed obvious differences. No movement whatever was produced on the normal side whereas on the other there were widespread contractions of all the muscles supplied by the facial nerve. Moreover, they persisted unchanged even if the nerve was divided at the internal auditory meatus. These two sets of experiments indicate that individual axons split at the point of trauma and that *the growing neurofibrils enter* a number of different peripheral branches. The hypothesis was finally proved by histological examination of the neuroma at the site of the injury to the nerve trunk. Thus widely separated muscles are supplied by branching of a single regenerated axon and an irrevocable functional union takes place between muscles which do not normally contract simultaneously.

---

[1] Lindhardt, M. The Statistics of Pulmonary Tuberculosis in Denmark 1925–34. Translated from the Danish by W. E. Calvert. Ejnar Munksgaard, Copenhagen. 1939. Pp. 179.

[2] Hunt, J. R. *Arch. Neurol. Psychiat.* 1923, 10, 37.

[3] Ballance, C. and Duel, A. B., *Arch. Otolaryng.* 1932, 15, 1.

[4] Ballance, C. Pyramidal cells of the facial area of the motor cortex. 1934. D. C. Thompson, Dundee.

[5] Howe, H. A., Tower, S. S., and Duel, A. B. *Arch. Neurol. Psychiat.* 1937, 38, 1190.

Fowler[6] discusses this work and some of the clinical applications. First, as a direct corollary, it follows that if tic-like associated movements occur after paralysis it is certain that the lesion was peripheral. He cites an interesting case where an otherwise probable diagnosis of intracerebral suppuration was ruled out by bearing this fact in mind. Secondly, the less the initial injury the fewer the interrupted axons which will subsequently sprout neurofibrils. Therefore, he believes that facial paralysis should be relieved at the earliest possible moment, and, in an injury, as much nerve as possible should be preserved. Thus excision of a portion of the nerve, as counselled by Duel, is probably not advisable if it is incompletely severed, and every effort should be made to spare the remainder because it may be relatively normal A neuroma at the site of an old lesion should be treated conservatively and pared away from the nerve in an effort to save possible underlying normal fibres. Thirdly, once the movements appear they progress to a certain point, usually synchronous with maximum functional recovery of the nerve, and are then absolutely permanent The two cases cited where Duel excised and regrafted the injured area of nerve failed because he had not then realised the cause of the phenomenon. It is inconceivable that a second set of neurofibrils would redistribute themselves any better than the first. Fourthly, in a Bell's palsy, if the faradic response disappears, and especially if reaction of degeneration is present, decompression should be performed, for again the fewer axons which degenerate the fewer new axons there will be to break up and cause multiple innervation of the face This is particularly applicable where the palsy is of the recurrent type Lastly, afflicted patients should reduce voluntary movements of facial expression to a minimum in order to prevent the secondary involuntary twitching Practice before a mirror and the cultivation of severe self-control are necessary. Self-consciousness of the deformity is a strong predisposing cause of these movements, and if some disfigurement persists after a nerve graft or decompression a plastic operation to straighten the face should be performed.

CALCULI AND ALKALI

STAGNATION and infection are almost the only certain known factors in the formation of renal calculi; experience in hospitals where patients with bone diseases are obliged to remain prone for many months confirms the high importance of stagnation That renal calculi occur when there is a prolonged and massive excretion of calcium salts such as in hyperparathyroidism is also well known, although this disease is so rare that as an ætiological factor it may be neglected Elsewhere in this issue, Mr Thomas Moore refers to another possible cause. He reports two cases of renal calculi occurring in patients who had had prolonged alkali treatment for peptic ulcer. In the first a staphylococcal urinary infection was present, but in the second case no element of infection was noted Mr. Moore points out that prolonged administration of alkali produces a highly phosphatic urine and consequently tends to produce calculi of the same type A recent paper by Kretschmer and Brown[7] on the same subject reviews 2210 cases, the difference in the incidence of renal calculi between those who received alkalis and those who did not was found to be so low that they conclude that alkali administration is of no significance in stone formation. Similarly, when examining 1260 cases in which renal and vesical stones had been present, they found a very low incidence of prolonged alkali therapy in the histories. The discussion of this paper by the section of urology of the American Medical Association appears to show that urologists as a whole did not consider alkalis played an important part in the production of stone Statistics en masse may, however, obscure individual factors of importance. Physicians treating large numbers of cases for peptic ulcer have often remarked on the occasional occurrence of stones at a later date in the patient's history. Although the administration of alkalis cannot account for more than a very small proportion of all the cases of renal calculi, yet if a patient with other factors predisposing to the formation of stone has the misfortune to develop a peptic ulcer, the risk of alkali administration should not be forgotten. At the present moment alternative antacids, such as aluminium hydroxide, are available, that these do not create phosphaturia should not be forgotten when the treatment of peptic ulcer over a long period is being planned.

MALARIA AND BLOOD-TRANSFUSION

THE risks of transmitting syphilis by transfusion of blood are well known, and the fatal case recorded by Nabarro and Edward[1] has brought out the real danger of conveying malaria in this way, even when clinical signs and symptoms have long disappeared. Hutton and Shute[2] have now discussed these risks and the precautions required in greater detail, based on their long experience at the Ministry of Health malaria therapy centre at the Horton L C C. Mental Hospital. They point out that the parasite apparently disappears from the blood after appropriate treatment or when a certain degree of natural immunity has been acquired in untreated cases, and therefore that for purposes of blood-transfusion a negative report of malaria parasites should not be accepted as complete evidence that the donor is free from malaria. They further show that the parasite may survive for days or even weeks in blood stored at low temperatures—i.e, about 4° C.—as is the case in the blood banks kept for transfusion in emergencies The survival periods of the three common species of malarial parasites vary. Thus patients infected with benign tertian malaria may continue to maintain sufficient parasites in their blood to induce malaria up to 18 months after the primary infection; for malignant tertian the period may be at least 12 months; while quartan parasites may persist for many years Quartan malaria is, however, the rarest of the three, although it was the infecting agent in the case recorded by Nabarro and Edward

From the point of view of practical prophylaxis Hutton and Shute suggest that the problem differs somewhat in selecting donors drawn from the civil population or from the fighting services. They suggest that donors from the civil population should be asked whether they have ever lived for long or short periods in the tropics, sub-tropics or Eastern Europe, and if they say that they have they should not be accepted if other donors are available. A very high proportion of regular soldiers, however, have served in malarial areas and it may not always be possible to obtain a service donor who has never been in the tropics The risk of transmitting malaria from such donors can be minimised by administering ten grains of quinine regularly once a week, but even a daily dose may be insufficient to sterilise the blood of a malignant tertian carrier. Should infection with malaria accidentally take place in this way serious consequences may be averted by prompt and effective treatment The routine methods of terminating an attack in use at the Horton Centre are (1) for ovale tertian, quin bihydrochlor gr 10 daily for three days, (2) for benign tertian, quin bihydrochlor gr 5 daily for fifteen days, (3) for quartan, quin bihydrochlor gr 10 daily for seven days, and (4) for malignant tertian, Atebrin 0 3 g daily for seven days, and then two doses of Plasmoquine 0 02 g with a week between them Although atebrin is innocuous in therapeutic doses, large doses have been known to produce toxic effects Plasmoquine is a highly toxic drug and should never be given in larger doses than 0 02 g daily and then only for short periods, its use will seldom be necessary

---

[6] Fowler, E P, *J. Amer med Ass* 1939, 113, 1003

[7] Kretschmer, H. L and Brown, R C. *J. Amer Med Ass* Oct. 14, 1939, p 1471

[1] *Lancet*, 1939, 2 556

[2] *J. trop Med (Hyg)* Oct 16, 1939, p 399

As regard diagnosis in this country, expert assistance in the examination of blood-films for parasites is supplied by the Ministry of Health,* and finally, it should be remembered that malaria, however acquired, is a notifiable disease

THE FATE OF THE TABLET

SINCE it became known that monographs on compressed tablets might be included in the British Pharmacopœia some useful work on standards has been done, the practical results of which will doubtless be helpful to the Pharmacopœia Commission The size and weight of the tablet need to be defined so as to ensure a uniformity of appearance and thus prevent the patient's suspicion when his second box differs from the first It is, however, still more important that there should be official standards requiring that the tablets when swallowed shall disintegrate in the stomach or intestine rapidly Berry,[1] in a paper read at this year's meeting of the British Pharmaceutical Conference, states that some tablets, either because of high compression or the method of preparing the ingredients may actually pass through the alimentary tract unchanged Brown,[2] on the same occasion, pointed out that tests for disintegration vary considerably in their results and that a standard test which would be universally reproducible was needed He said that undue significance should not be given to differences in rate of disintegration, since a tablet which disintegrates anywhere within a certain time limit can be considered satisfactory Berry's experiments showed that most disintegration tests for tablets possessed the disadvantage of not having a definite end point In one method tablets are suspended on a wire loop just below the surface of a column of water at 18° to 20° C The end point occurs when all the tablet particles have fallen Such a method works well with certain tablets, particularly those which contain large insoluble crystals, but it does not work with such tablets as calcium lactate which form a sticky mass The Swiss Pharmacopœia specified a method of gently shaking a tablet with water at 37° C and noting the times of disintegration This again works well with tablets which disintegrate evenly but the end point is sometimes very indefinite The method suggested by Berry depends upon a weighted wire cutting through the tablet after the tablet has been softened in water the end point is the fall of the weight and is consequently quite definite Brown uses a compression balance, in which the weight necessary to crush the tablet immersed in different media is measured Either of these methods may commend themselves to the Pharmacopœia Commission in their task of making sure that compressed tablets do not come out of the patient's body in the form in which they go in

---

*Such films should be addressed to the Assistant Malaria Officer Ministry of Health Malaria Laboratory Horton Hospital Epsom, Surrey

[1] Berry H Quart J Pharm July 1939 p 301

[2] Brown C L M *Ibid* p 453

NORMAL FLORA OF THE NASOPHARYNX

THE authors of a report[1] just issued by the Ministry of Health have studied over a period of seven years the month-to-month variations in the normal nasopharyngeal and nasal flora of a group of over 100 of the personnel of the London School of Hygiene The findings were checked by less frequent observations on another group of adults, boys at two schools and infants at an orphan home Attention was paid primarily to the incidence of pneumococci, hæmolytic streptococci, meningococci and *Hæmophilus influenzæ* The organisms carried by any one individual varied from one swabbing to another, but the percentage incidence of any particular organism remained fairly steady for any one environmental group No changes in bacterial flora were noted in advance of an epidemic of influenza Hæmolytic streptococci were found in 0–20 per cent of swabbings during the seven-year period At times of epidemic prevalence of tonsillitis in schools the carrier-rate rose in the normal contacts Evidence obtained supported F Griffith's view that at such times one particular epidemic strain of streptococcus spreads rapidly through the community Pneumococci had an incidence of 20–60 per cent For the first time the incidence of the different serological types has been studied on an adequate sample of normal people The various types were prevalent to a differing extent in the different communities studied, thus types IV and XII were frequently isolated at one school, seldom elsewhere. An individual might yield one type on one occasion and another type later, there was apparently plenty of give and take of pneumococci among the people studied There was no general increase in incidence of pneumococci at a time of prevalence of pneumonia No one type ever showed signs of spreading rapidly and rising to a position of dominance Meningococci occurred in 6–26 per cent of swabbings, over half of those taken at the School of Hygiene showed a carrier rate of more than 15 per cent During the last war a carrier-rate of 20 per cent was considered a danger-signal The figures recorded in this report differ from the war time data but are in harmony with other figures recorded recently They are particularly important now when army medical officers are anxious lest the history of cerebrospinal fever in the last war may be repeated *H influenzæ* showed a steady carrier rate in the nasopharynx of 60–65 per cent The studies of Dr Straker and her colleagues on the incidence in the nose and nasopharynx are instructive in relation to those of Drs Rosher and Cole on the occurrence of *H influenzæ* in the trachea They suggest that there is "a winter spread" of the organism to the nose and trachea 'from a permanent centre of colonisation in the nasopharynx, followed by a summer recession" Findings in relation to colds suggest that certain virus infections may act like wintry conditions in favouring extension of *H influenzæ* beyond its normal habitat

On Nov 30 at 3 P M SIR WALTER LANGDON BROWN will deliver the Thomas Vicary lecture to the Royal College of Surgeons of England His subject will be the Apposable Thumb

DR E D ADRIAN F R S, professor of physiology in the University of Cambridge, has been appointed a member of the Medical Research Council in the vacancy caused by the death of Prof John Mellanby

---

[1] A study of the nasopharyngeal bacterial flora of different groups of persons observed in London and South East England during the years 1930 to 1937 By E M Straker, A Bradford Hill and R Lovell With some observations on the occurrence of *H influenzæ* in the trachea by A B Rosher and W T Cole H M Stationery Office 1939 2s.

SPECIAL ARTICLES

PREVENTION OF WAR PSYCHONEUROSIS IN SOLDIERS

By E. N. SNOWDEN, M.B. Lond.

PSYCHOLOGIST TO THE HOSPITAL FOR NERVOUS DISEASES, MAIDA VALE; LATE CHIEF ASSISTANT IN THE DEPARTMENT OF PSYCHOLOGICAL MEDICINE AT ST. BARTHOLOMEW'S HOSPITAL, LONDON

THE first duty of medicine is to prevent disease. Therefore, since the psychoneuroses caused many casualties in the last war, and since there is no reason to assume that the conditions will be any less testing in the present war, it is worth while to inquire if this loss of fighting power can be prevented. To do this, the conditions producing neuroses in peace-time must first be considered.

THE PEACE-TIME CASE

Speaking broadly, a psychoneurosis arises because of a failure of adaptation of the individual to circumstances, either because of some inherent or acquired weakness or of some abnormality in the surroundings, or of a combination of both. Thus it can be assumed that everyone is capable of developing a psychoneurosis, for conditions can be visualised which will be beyond the powers of adaptation of even the best balanced man. Inherent weakness is well shown in the type of temperament which avoids the more robust side of life both in games and in other things. This class does not necessarily include the sensitive imaginative type, which is more often found to be brave and enduring beyond the average.

Among the acquired weaknesses are the bulk of those types which tend to develop a psychoneurosis. They include (1) those who have been terrified in childhood by noisy quarrels between parents or by drunkenness in either parent, and by humiliation and a feeling of inferiority caused by their identification with such a home; (2) those who have developed a phobia as a result of the emotion induced by some single overpowering experience; and (3) those with the type of inherent weakness mentioned above—namely, those who have had a completely sheltered life due to faulty upbringing by indulgent parents. This brief survey does not include all the types but is intended to indicate the direction in which a lack of resistance to ordinary difficulties in life may be found.

The class of person liable to develop a psychoneurosis includes those with ordinary resistance who are overcome by an extraordinary circumstance which causes profound psychic trauma, in some as the result of an accident producing a sudden shock, in others from a business or domestic upheaval involving a more prolonged strain. These types are sufficiently obvious not to need any further description.

THE WAR-TIME CASE

All these classes of people are being drafted into the Army. A few of them will be fortified and set up by military training and the companionship of normal men, but most of them must sooner or later become aware of the fragility of their mental armour in the circumstances in which this war will probably be waged.

During the last war many men developed war psychoneurosis and their number increased as the war went on. This increase was not due, as some have held, to the recognition of the condition by the authorities but to the number of men engaged, the conditions in which fighting was taking place, and the fact that the persistence of the voluntary system for a long period had resulted in the weaker types avoiding service and having a long wait at home, with all the horrors of war before their eyes, before enlistment became obligatory. Apart however from this, no type was immune from the development of psychoneurosis, and it seemed ultimately always to depend on outside forces—the experiences of the individual. Some were fortunate and had an easy time, whereas those who showed symptoms due to the strain were either constantly engaged in the more dangerous tasks or had been exposed to such accidents as being blown up or buried. The man with a phobia which conflicted with his work as a soldier was peculiarly vulnerable, and many of these were unconcerned about the risks of death or wounds but broke down under the strain of the sight of blood, the risk of suffocation or of being shut in a dug-out, or the filth of trench latrines.

PREVENTION OF PSYCHONEUROSIS

Can the knowledge and experience of psychological medicine gained during the last twenty-five years be used to reduce the incidence of the psychoneuroses during the present war? Speaking generally, it must be accepted that the more that is known about an illness, the easier it is to prevent or cure it, so long as the knowledge is made available to those who have to deal with the disease. In the case of the soldier these include the staffs of casualty clearing stations and base hospitals, but in the prevention of the psychoneuroses it is especially necessary for the regimental medical officers to have sufficient knowledge of the subject to be able to detect and treat the men before their symptoms become too severe to be controlled.

Experience has taught psychiatrists that early detection and treatment are essential if the illness is to be prevented or cured in a reasonable time. This is most evident to those whose work lies among children of school age and to those who treat cases of psychoneurosis arising from serious accidents to workmen. It must be true also of the soldier exposed to the strain of warfare. In such early cases the treatment does not include any extensive psychological treatment nor any of those psychotherapeutic measures which may be necessary in peace-time cases of long standing; in fact, the soldier need not realise that he is being treated for anything more than the symptoms of emotional strain. All that is required in most cases, if they are taken early enough, is that the men should be given a feeling that they are being understood and treated sympathetically, and that they should be supplied with drugs to slow down the emotional reactions. In cases of greater severity and in the last resort it may be necessary to consider some change of conditions, besides some simple psychotherapy, to retain the usefulness of the soldier in some other sphere and to prevent his becoming an expensive casualty, but this would have to be undertaken further down the line by medical officers specially trained for the purpose.

Some such scheme as the following is therefore suggested. The principle always to be followed is that no man with psychoneurosis is evacuated to England until he has passed through the whole system and has been finally certified by a competent authority as being of no further value as a soldier in the existing conditions.

SCHEME OF TREATMENT

The training of regimental medical officers need only be very simple. The medical officer does not need to practise any psychotherapy; in fact, he has no time for anything of the sort. All he has to learn is to recognise an incipient psychoneurosis when he sees it, and this could be taught in a short course of lectures.

The cases are likely to be of three types: (1) conversion neurosis, involving a loss of function in some part of the body; (2) anxiety neurosis, involving trembling, palpitation, breathlessness, sleeplessness, flush, sweating, and increased deep reflexes; and (3) depression and helplessness. The recognition of these types is easy, and, except for depression, they cannot readily be simulated. The regimental medical officer should be taught to look for these cases in his ordinary parades of sick, and he must treat them as frankly and as naturally as he would any other minor casualty. The soldier must be told that he is suffering from the strain, and he should be asked if there is any part of his duties that he finds particularly difficult or disturbing, so that this can be modified if it can be done without hardship to his fellows. If he has a loss of function of any part of the body he should understand that there is no disease to the part involved. The action of the sedative that is given to the patient can be explained. The condition should be treated seriously but as a minor casualty, and, unless the man is completely disabled, there should be no suggestion that the psychoneurosis is a reason for evacuation to the base. Every man who can be kept at his duty by these methods is of double value; he is one more active soldier and one fewer casualty to be dealt with behind the line.

It is obvious that this work becomes more difficult if there are many casualties of a surgical type coming through the regimental medical officer's hands, but *it is often possible*, when a man shows acute signs of strain, to give him a few hours' sleep by an injection of hyoscine hydrobromide gr. $\frac{1}{75}$ and to send him back to his duties refreshed. Morphia must never be *used for these cases*.

The regimental *medical officer is therefore the first line of defence* of the whole system. The casualty clearing station is the second line. Here the work of the regimental medical officer can be elaborated, and, unless the accommodation for patients is overstrained, a few days' rest can be given instead of a few hours, with prolonged narcosis if necessary. At the casualty clearing station no psychotherapy should be attempted beyond treating the patient sympathetically and understandingly and preventing his symptoms from causing him alarm, so as to avoid secondary anxieties.

The base hospital is the third line of the system. Here definite psychotherapy can be attempted unless the strain on accommodation becomes very great. The patients should be segregated as far as possible, although this is not essential, and they should have individual attention to discover the particular part of the life in the fighting line which each patient found most difficult to withstand. These difficulties can be compared with the patient's reaction to the difficulties in his peace time life, and by discussion, explanation and re-education his courage can be restored. Sedatives of various degrees of potency can be given to reduce the emotional reaction and to ensure sleep. Finally, the patients must be well fed. In most cases the digestive processes are diminished, and an infrequent heavy meal is less well tolerated than frequent light meals, but the patients must not be allowed to go hungry.

REHABILITATION

The last line of the system is the rehabilitation camp, and here there should be an atmosphere of activity. There should be opportunities for games, exercises, and physical labour, leading to military exercises, so that the military attitude of mind can be regained. No patients in this camp should be idle as soon as he is considered to be fit for any kind of activity, so that, at the end of his course, he is doing a full day's hard work, and, on rejoining his unit, is fit to take his place with other men without finding it a strain.

There is much to be said in favour of these rehabilitation centres and their extensive use for convalescents other than psychoneurotics. They are advocated here because of the fact, established in the last war, that a man who is not completely fit cannot be expected to stand up to the emotional strain of warfare. This coincides with the experience of the peace time case—*that the symptoms of anxiety are most* likely to become evident when a man returns to face a strain after a debilitating illness. During the last war the greatest number of cases of psychoneurosis in soldiers of the best type, were the result of the men being hurried back to the front line before they were fit. Patients with a minor illness, such as influenza and laryngitis, should be given a course of rehabilitation before being returned to duty.

Some such scheme as this should be effective in preventing to a very great extent the development of the psychoneuroses in the fighting man.

CONVERSION NEUROSIS

A final word must be said on conversion neurosis, with some loss of function as its chief symptom. In the last war there were very many of these cases, and the reason of their predominance is simple. The soldier who was finding the strain too great for him had no redress, nor had the medical officers any power to help him. If he reported sick he was given a No. 9 pill and returned to duty. So long as he could stand up he must fight, and he tried his best until the strain became unendurable. In this state of mind he was *ripe for the development of a functional symptom*. Some minor injury or illness suggested to him the form that this was to take. A sore throat suggested aphonia, an injury to his back the loss of use of one or both legs, a bruise on a shoulder a flaccid paralysis of his arm, an attack *of gastritis* persistent functional vomiting, and so on. The patient now had a physical disablement which ensured his escape from the impossible situation. It must be emphasised that to the soldier the illness was not assumed but was genuine. Any malingering can always be easily detected and no one with experience can ever confuse the true with the false.

These conversion cases probably outnumbered all other types of psychoneuroses seen during the 1914–18 war. Under the scheme here put forward these cases should be greatly diminished not only in numbers but in proportion to the other types. In the last war their preponderance resulted from the lack of understanding and of facilities for early treatment of the anxiety conditions, leaving no other escape from the strain except by a physical symptom which satisfied the patient that he was finally disabled. In this war theoretically no case should reach this stage, although in practice some cases of this type must be expected. A word with regard to the treatment of these cases will therefore not be out of place.

No form of compulsion or of painful treatment is of any value. This will succeed as a method only when the patient is away from the strain and on the way to spontaneous recovery; in fact, any small suggestion will remove the symptom when it is no longer required as a defence, and this need not be a painful stimulus While the patient is still under strain, he will suffer almost any torture to retain the symptom which is his sole defence, and painful treatment is cruel as well as useless If the treatment is too painful to endure, he will exchange one symptom for another—e g., aphonia changes to stammer. From the beginning the patient should be left in no doubt about the nature of his symptoms, but the whole condition should be taken seriously, and he need not be made to feel any humiliation because he has a physical symptom without a pathological basis. The symptom should be left alone, no matter how strong the temptation to try and remove it. It serves as an indicator to the physician of the progress of the case. The purpose of the symptom having been explained to the patient, he can be reassured that it will disappear spontaneously when the strain has been relieved, and his treatment thereafter follows along the lines laid down for the anxiety cases—the rehabilitation should not be hurried because he shows no signs of emotional strain This type of case has been dealt with at length because such patients are incorrectly handled more often than are the anxiety cases.

ORGANISATION

The scheme above outlined should be easy to organise The only increase of personnel is the provision of a psychologist at each suitable base hospital and the equipment of a special rehabilitation camp, remote from the war activities, also in the charge of a psychologist. This expense would be more than compensated by the fact that the need for neurological hospitals in England would be greatly diminished

HEALTH OF LONDON BUSMEN

ONE of the main factors leading to the stoppage of the London Central Omnibus services in the spring of 1937 was the widespread feeling amongst the drivers and conductors of the vehicles that the conditions of their work had, with the modern growth of traffic, become so exacting as to be definitely injurious to their health In particular they believed that these conditions led to an abnormally high incidence amongst them of illness of the digestive system Some evidence to this effect was placed before the court of inquiry appointed by the Minister of Labour to inquire into the stoppage, but it was not sufficient to convince the court that the busmen's occupations were in fact unhealthy. It was, however, sufficient to lead the court to advise further investigations In consequence the Minister of Labour arranged for an inquiry by the representatives of three bodies—the London Passenger Transport Board, the Transport and General Workers' Union and the Medical Research Council—with Sir John Forster as their chairman The result of their labours has now been published[1]

From the statistical aspect they accept the main conclusion of Bradford Hill's report to the Industrial Health Research Board[2] which was published after the court of inquiry had completed its task—namely, that in the years 1933-35 the London omnibus workers in comparison with its tramway workers showed a small relative excess of gastric illnesses. This result they confirm by means of a similar comparison of the omnibus workers with the transport board's maintenance workers employed at Chiswick. With an eye to the possible errors of diagnosis in panel practice (only the first diagnosis being available), they sought more precise data from hospital records but were unable to devise any practical means of obtaining these both for the busmen and for appropriate control groups Mortality data were equally uninformative On the other hand evidence is given that the sickness-rate from all causes of illness, both of drivers and conductors, has not risen between 1931 and 1938, in spite of the growth of traffic which led to the operatives' complaints of the present intensity of their work. Despite the ameliorative changes in working conditions which followed the stoppage of 1937 those complaints were reiterated by the men's representatives whom the committee interviewed. They therefore made a careful study of those conditions, which are set out briefly in the report, and took medical advice upon the general question of the causation of gastric illnesses to see whether any special features of the work might appear to predispose the men to such forms of sickness

The committee was particularly impressed by two aspects of the busman's work, the irregularity of the hours of duty and, in consequence, of meal-times, and the nervous tension and anxiety which operating a bus in central London probably involves. Irregularity of work is an inevitable feature of a bus service and the present agreement between the board and the union provides that turns of duty shall change weekly. So frequent a change clearly demands a considerable power of adaptation from the gastric system On the other hand, a system of rotation of shifts on, say, a monthly basis, would mean that a proportion of the bus crews were engaged continuously on the heavier duties while others were working for a similar length of time on lighter duties This, no doubt, accounts for the lack of desire of the men themselves for any such change

Medical opinion was unanimous regarding the undesirability of irregular meal-times and the committee therefore advises the board and the union to consider a system providing a longer interval between changes of shifts. They also conclude that some spells of duty are too long and in these instances an earlier meal relief should be introduced The actual duration of time allowed for a meal relief was not apparently a specific matter of complaint by the men, but, in view of their attitude to the "intensity of the work" and the problem of nervous tension, the committee advises that consideration should be given to a reduction in those reliefs which at present provide less than 40 minutes (a considerable proportion of the total). For the same reason they lay great stress on the provision of rest-pauses between journeys, the adequacy of which has been called in question by the busmen These, they say, should be kept under constant review in the construction of schedules The provision of facilities for the adequate use of such rest-pauses—canteens and rest-rooms, washing and lavatory accommodation—are being steadily pushed forward by the board.

The committee took expert evidence on the question of the absorption of carbon monoxide and other fumes by the bus crews, but were unable to determine whether, as the men believe, they contribute to the incidence of gastric illness In general, however, it seems that under normal peace-time conditions the London busman feels the strain of his work. The ways and means of amelioration suggested in this report will, no doubt, be closely considered by all parties.

---

[1] Health of London Central Busmen H.M Stationery Office, 1939, p 49, 1s

[2] Industrial Health Research Board report No 79 1937

STORED BLOOD FOR TRANSFUSION

We have received the following communication from the Medical Research Council. It is signed by Drs H. F. Brewer, M. Maizels, J. O. Oliver and Janet Vaughan, the directors of the four blood-transfusion depôts in the home counties.

Since the outbreak of war considerable use has been made of stored blood for the treatment of civilian patients needing transfusion. Reports that stored blood has a somewhat greater tendency than fresh blood to cause reactions appear to have led to apprehension in certain quarters. We believe that at least some of these reactions may have been due either to faulty technique in the preparation of apparatus, the withdrawal, storage, or administration of blood—or to the use of unduly hæmolysed blood—and that they should not be taken as condemning stored blood. Blood has been distributed to a number of hospitals from the four emergency blood-transfusion depots for London and the home counties, where the methods of collection and storage have been those outlined in the memorandum recently issued by the Medical Research Council. The reports returned have been uniformly satisfactory, although one observer, while appreciating the immediate restorative use in collapsed and exsanguinated patients, suggests that the tonic and anticoagulant value is less than that of pure blood.

Complete records of 160 miscellaneous cases, medical, surgical and obstetrical, are available. They were given in all 219 pints of blood and were treated in 41 different hospitals. The maximum amount any one patient received was six pints given as a continuous drip. Blood varied in age from a few hours to three and a half weeks. Group O blood was used in the majority of cases, but Group A and Group B blood was also provided on request. Slight rigors were recorded in 10 cases, but in several such instances inquiry showed that the blood had been given cold. In three cases there was transient jaundice; one patient passed red cells in the urine after transfusion, but the medical officer in charge was doubtful whether this could be attributed to the transfusion. No case of hæmoglobinuria was recorded. No fatality proved directly attributable to the transfusion of stored blood has occurred.

The importance of the following significant points must be stressed, if optimum results in the use of stored blood are to be obtained:

1. The anticoagulant solution should be prepared with freshly distilled water from a clean still and it should be filtered and autoclaved immediately.
2. All apparatus must be scrupulously clean. In the case of the rubber tubing, a stiff wire carrying a swab or narrow elongated brush (e.g., a 0 22 rifle barrel cleaner) should be passed throughout its length, since mere washing under the tap is insufficient to remove small adherent pieces of clot. Rubber tubing freshly obtained from the manufacturers *must* be washed to remove the French chalk with which its inside is coated.
3. Strict surgical asepsis should be observed whilst actually collecting blood.
4. Storage should be carried out at 2°-4° Centigrade.
5. Blood showing undue hæmolysis should not be used. A zone of discoloration due to hæmolysis extending above the corpuscle layer up into the supernatant citrated plasma for ½-1 cm. or less (this occurs very occasionally with blood over seven days old) may be allowed, but greater degrees including complete tinging of the plasma should be a definite contraindication to use.
6. Corpuscles and plasma may be mixed before the transfusion by as little and as gentle agitation as possible.
7. The blood should be warmed to body temperature before use; *the avoidance of overheating is equally important*. The highest temperature advised is 104° F.

The elimination of grouping errors as a cause of reaction is assumed.

UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENT)

WHO SHALL ADMINISTER MEDICAL CARE?

Last year at this time the American Public Health Association was answering the question, Shall medical care be extended? This year at Pittsburgh the convention has gone on to inquire, How shall the enlarged programme of medical care be administered? and the incoming president, Dr Edward S. Godfrey, Jun. (who is health commissioner of the State of New York), dealt with the plight of that third of the nation which is unable economically to provide for itself necessary food, shelter and medical care. The public health profession recognises, said Dr Godfrey, that its efforts must be applied first where the need is greatest but, he added, "there is a danger to both the quality and quantity of the services for the health of the entire people when public-health work is associated administratively with agencies dealing exclusively with low income groups of the population. Public health is something which should grow. Agencies for relief are something that should disappear." Dr Godfrey admitted defects in public health administration, but he defended with vigour the efficiency and integrity of public medical administration as contrasted with private medical care on a fee for service basis.

"We public health people," he remarked, "see many instances where the fee-for-service system of payment has interfered with the rendering of a complete health service. The interference is not merely the payment for the primary call, but the inhibition imposed on the physician against offering or suggesting services for other obvious needs of the individual or his family . . . It is doubtful that any amount of public health education can overcome the economic and psychological barriers imposed by this system and its alternative of 'pauper' care. There must be something better.

"For my own part I want to reiterate my resentment of the imputation, implied or explicit, that a salary stultifies . . . that no medical health officer ever worked overtime, exercised any independent judgment or is anything more than a robot motivated by a monthly salary check.

"In a recent address a prominent exponent of 'organised' medicine asked the rhetorical questions whether we wanted England's, Hitler's, Stalin's or New Zealand's medicine or American medicine, whether we wanted socialised, state, or democratic medicine Aside from the propagandist questions we may well ask ourselves what is American democratic medicine? My answer is that it must be public health medicine, which means that it is preventive as well as curative medicine, that it is medicine delivered without distinction as to race, creed, occupation or income, that it is for no less than three-thirds of the people."

While we should be prepared to borrow freely from the experience of other countries, we also, Dr Godfrey concluded, need American experience acquired through experiment.

General approval was given at the convention to the programme of the Committee of Physicians. The public health administrators, however, expressed doubts about the wisdom of a national health council with administrative powers. Commissions of experts, they felt, tend to obstruct progress. They prefer to rely on the prestige of a national medical advisory committee to prevent spoliation of the public purse by medical and lay politicians. But they are not very convincing, to your correspondent at least, when they attempt to describe how this prestige is to be attained.

DR. CABOT ON MEDICAL ECONOMICS

Fear of change accounts in Dr. Hugh Cabot's opinion for much of the present opposition to plans for improving the distribution of medical care In a recent address to the Association of Women in Public Health he recognised the danger that waste and extravagance might result from a too rapid readjustment from private to public financing of medical care If the government provides the funds, as it must, then the government becomes responsible for their proper use. It is quite possible by loose distribution of funds not only to fail to improve the medical attention which people receive but even to make it worse.

> " At the present time," he said, " a fair proportion of the monies spent upon medical care is wasted on account of duplication of services, overlapping of effort, wasteful purchase of equipment, and payment for poor services. In so far as this waste involves only the funds of individuals and does not involve the expenditure of public monies, it is not a matter of public concern and may be regarded as one of the exuberant demonstrations of the wastefulness of freedom. But if government is to retain the respect of the community, it must make every effort to avoid payment for a poor article of medical service."

The first essential step then is to set up standards and to make provision for their perpetuation. Provision must also be made for continued adjustment of standards to keep up with advances in medical science. These standards must cover the fields of medical education, medical research, and medical care. To this end Dr. Cabot recommended the creation by the federal government of a General Medical Council to be appointed by the President and to have great security of tenure To set up such a council will in no way interfere with the liberty of the individual; it is simply an assertion of the right of the taxpayer to have some assurance that his money will be wisely spent

IRELAND

(FROM OUR OWN CORRESPONDENT)

AIR-RAID PRECAUTIONS IN DUBLIN

THE city manager of Dublin made a statement to the press last week on the progress of air-raid precautions in the city. He said that preparations have been going on since last January, but the passage of a legislative measure in August and the outbreak of war have awakened the public mind to a deeper and greater interest in the question of civil protection against attacks from the air. The basis of precautionary schemes is the air-raid warden service, and for this branch over 2000 volunteers have been enrolled, of whom 600 have been given a thorough training in warden duties Eight premises have been erected as first-aid posts and the St John Ambulance Brigade has placed its full existing strength of 1000 members at the service of the corporation The brigade will supply the entire personnel for the first-aid posts. Some 1800 people not already members of the brigade are under training for this purpose. The brigade will also provide four mobile units, and will make provision for decontamination in case of gas attack. Steps are being taken to use certain of the voluntary hospitals as casualty clearing stations, providing in all 500 beds. In order to make such accommodation possible, it is intended to provide an evacuation hospital outside the city area to receive 300 patients from the hospitals when the danger of raids appears to be imminent. In addition it is intended to establish a base hospital well outside the danger zone; premises for this purpose are under inspection, but no definite decision has yet been made The city manager also said that an auxiliary fire service is in process of organisation, and it is hoped to train volunteers at the rate of 100 a week until a personnel of 1000 has been established. Shelter accommodation is being provided for some 25,000 people. A transport service has also been arranged with the help of the Automobile Association and the Royal Irish Automobile Club.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

DYSENTERY IN AN EDINBURGH HOSPITAL

AT the outbreak of war many patients were transferred from the Eastern General Hospital, Edinburgh, to provisional accommodation at the hospital of the Craiglockhart Institution. Here at the end of September there occurred an outbreak of a comparatively mild form of dysentery. It has now settled down but there have been in all about 150 cases with four deaths In most cases no dysentery organisms were cultured from the stools but in eight there were prolific Flexner growths The outbreak apparently originated from a carrier among the public assistance inmates of the institution; the large number of patients affected was probably due to the importation of a large fresh population from the other hospitals.

EDINBURGH ROYAL INFIRMARY

At a meeting of the League of Subscribers recently Lord Russell, representing the managers of the Royal Infirmary, drew attention to the temporary reduction in the number of beds available for the civil population immediately after the outbreak of war. The Government was setting up base hospitals in outlying districts and the services of these hospitals would be made available to citizens in the surrounding districts. The Government had asked the managers of the Royal Infirmary if it would be possible for certain members of the honorary staff to be temporarily transferred to these base hospitals, and this had been agreed to Lord Russell went on to say that a great deal was heard nowadays about the voluntary hospital system being on its last legs and that we must look forward to state supervision and control in the future. This was logical and it might ultimately come, but he felt that it would be a misfortune if the impulses of benevolence which were represented by voluntary assistance of an institution like the Royal Infirmary were allowed to pass out, and if the citizen was allowed to be satisfied by feeling that he had accomplished his duty in the matter of paying his rates and taxes

At the same meeting, attention was drawn to the position of regular contributors to the infirmary funds who, when they required treatment, failed to obtain admission and had to enter the municipal hospitals where they were charged for treatment. There was considerable dissatisfaction among some groups of subscribers. In reply it was stated that negotiations had been proceeding between the board of managers of the infirmary and the town council but these negotiations had been interrupted by the war. The matter was still under consideration.

GERMANY

(FROM A NEUTRAL CORRESPONDENT)

PROSECTORS IN THE GERMAN ARMY MEDICAL SERVICE

Professor Aschoff of Freiburg has recently pointed out that in the past army medical services have considered pathologists superfluous As a surgeon-general remarked "Necropsies are not performed in wartime" It was only in the course of the last war, and thanks in particular to the initiative of Dr von Schjerning, that a breach was made in this conception, and the services of prosectors were accepted in the German army These prosectors justified their existence by the part they played in clearing up the pathology of gas-poisoning and the differential diagnosis *of gas-poisoning and influenza Professor* Aschoff's plea is for the recognition and better appreciation of the pathologist in solving war time medical problems

CONFINEMENTS IN HOSPITAL TO BE DISCOURAGED

According to an order issued by the Reich Ministry of the Interior, women are to be confined at home provided normal labour is anticipated It is pointed out that even in straitened circumstances and under the supervision of a midwife only women labouring with child may fare better at home than in overcrowded hospitals whose patients are suffering from a great variety of diseases

STIFFENING OF V D REGULATIONS

The public health authorities in Germany have issued *instructions for tightening the control of patients* suffering from venereal disease It is decreed that the doctors in charge of venereal disease dispensaries must immediately report the source of infection in every case *Such notification is to be carried out not only* when the patient neglects treatment or in other ways is a danger to society, but in every case and regardless of circumstances It is hoped that these stringent rules will facilitate the discovery of sources of *infection*

WAR TIME DISTRIBUTION OF GERMAN DOCTORS

At the beginning of 1938 the total number of doctors in the Reich was 49,907 Among them were 3503 women doctors Of the 38,000 practising German doctors at the outbreak of the war, approximately one-third has been allocated to army service Measures have been *taken to distribute the remaining two-thirds* as evenly as possible among the civilian population A medical reserve of more than 1200 doctors has been organised for filling in gaps as they occur Such gaps have needed filling in Danzig, East Prussia and other parts where life has been dislocated by the war Another reserve of 2100 doctors has been formed for service *in hospital* by the promotion of *medical* students who have reached their fourth clinical semester The services of many married women doctors have also been requisitioned As the city of Berlin has been provided with only 1500 beds for infectious cases, seven barracks are being run up in connexion with six hospitals to make good the deficiency in this respect

FATAL ACCIDENTS

The rate at which fatal road and other accidents occur in Germany has increased considerably during the last few years In 1937 this rate was 3 per 10,000 whereas it was 3 4 in 1938 and 3 7 in the first quarter of 1939 A comparison of the accident death rates in the first quarters of 1938 and 1939 shows a rise of 9 2 per cent Alcohol was a contributory factor in over 40 per cent of the fatal accidents It is calculated that in every quarter of the year some 1000 *persons lose their lives in Germany* on account of overindulgence in alcohol

NECROLOGY

The following deaths are announced Dr G Stiefler, professor of neurology at the University of Innsbruck, aged 62, Dr Karl von Seydel, of the Bavarian Army Medical Service and honorary *professor of the* University of Munich, on his eighty-sixth birthday, Prof Wilhelm von Speyr, former director of the mental hospital and lecturer in psychiatry at Berne, aged 87, Dr Walter Krebs, founder of the institute for rheumatism research at Aachen, aged 71, and Prof G Schmeidel, in charge of the topographical-*anatomical section of the anatomical institute at the* University of Vienna, killed in action on Sept 18

MEDICINE AND THE LAW

Croydon pays for the Typhoid Epidemic

A NOTE in the *Times* of Nov 9 summarises the cost to the Croydon borough council of the typhoid epidemic which occurred at the end of 1937 The items to be met included the damages and taxed costs awarded in the test *case of the claim of Mr Alfred* Read on behalf of his daughter, and damages and costs *already paid in other cases The total is over* £92,000, according to a statement issued by the finance committee, action is being taken to obtain the sanction of the Minister of Health to the raising of this sum by loan In addition to this expenditure approximately £8000 (largely representing the costs of the Minister's inquiry) has been charged to general rate *fund revenue, and £6000 (largely consisting of the* corporation's legal costs in the Read case and in similar claims) has been charged to waterworks revenue account It is stated that the number of claims now settled is 260 and that 28 of these were *cases where death had occurred*

In the lengthy proceedings in the Read litigation, *decided last December, the corporation entered no* appeal No other claims have been contested Indeed, the corporation has gone out of its way to compensate in cases where the claim might have been barred on the ground that the claimants did not issue their writs within the six months prescribed by section one of the Public Authorities Protection Act or the twelve *months prescribed by section three of the Fatal* Accidents Act It refrained from pressing any merely technical point by way of possible defence, but made up its mind to accept a general responsibility It might, of course, be *ultra vires* for a statutory body like the borough of Croydon to pay away money where there was no legal liability The corporation there*fore promoted a bill (passed into law last July) to* validate such payments The preamble to the bill recited the fact of the outbreak, the result of the subsequent inquiry, the tracing of the infection to the Addington well, the commencement of several claims for damages, the decision in the Read test case the corporation's desire (notwithstanding the availability of the technical defence that certain claims might be time-barred) to pay "such sums as they may determine to be reasonable in the circumstances" and the need of obtaining the authority of Parliament for this purpose in view of the legal doubts whether such sums could otherwise lawfully be paid The act specified the scope of the compensation This included any loss, injury or damage suffered by anyone through the contracting of typhoid fever, the medical or other expenses, and, where death occurred the injury result ing to the dependants of the deceased as well as the cost of the funeral. There was an express proviso that the corporation should not be authorised to make any payment for the benefit of a deceased person's estate except the medical and other expenses and the cost of the funeral. Thus the proviso excluded the uncertainties introduced into the law-courts by the Administration of Justice (Miscellaneous Provisions) Act, 1934; judges and juries will not be asked to assess—nor the defendant corporation compelled to pay—the vague and almost aleatory values into which the new law translates a deceased person's sense of his lost prospects of living out the normal span. Against the cost of accepting an additional liability, and of promoting a private bill, Croydon can thus set the reduction of the scope of damages and a big saving in the costs of litigation. The households which suffered from the epidemic will contribute, through the rates, towards their own compensation. But, on the whole, a good precedent is set for meeting a difficult situation in a common-sense way.

Guilty but Insane

After three days' trial at Nottingham assizes last week Dr. Leonard Phipps Lockhart, charged with having murdered his wife at Beeston on Sept. 2, was found "guilty but insane." This form of verdict has been criticised over and over again. Judges are ashamed of it, but official prudence is too timid to propose statutory amendment. If a man is insane, he cannot form the conscious intention to commit murder; if he is guilty of murder, he cannot be insane But, whatever the form, the result of the verdict is that the accused doctor is ordered to be detained during His Majesty's pleasure. He becomes, in fact, a "criminal lunatic"—another inconsistent and anomalous phrase. The abortive Criminal Justice Bill had proposed to substitute for this description the euphemistic "state mental patient" Not to linger over these verbal infelicities, the trial is important for the impressive evidence given by leading members of the medical profession on Dr. Lockhart's behalf and for the fact that their evidence was accepted

On Sept. 2, the day before war began, the accused doctor and his wife were found lying in front of a gas fire in the study of their house at Beeston Dr. Lockhart was unconscious but recovered after treatment in hospital. The prosecution proved that Evipan had been administered to Mrs Lockhart and that she died of carbon-monoxide poisoning. The Crown case had been opened as possibly one of suicide pact; if the jury accepted this view of it, legal decisions establish that the survivor would be deemed guilty of murder. Mr. Justice Singleton, in summing up to the jury, seemed not to favour the theory of a pact. These were, he said, comparatively young people; it was not impossible that one would have tried to dissuade the other: in any event there was no proof of an agreement to commit suicide. Alternatively, the Crown suggested that evipan was given to Mrs Lockhart, in the course of bringing about her death, by a devoted husband who trembled with terror at the thought of her mutilation by aerial bombing. Counsel for the prosecution suggested that the anæsthetic was administered in her bedroom and that the husband was thus able to carry the limp body to the study, place it close to the gas fire and arrange the death The burden of proof was, as usual, on the prosecution except that, in so far as the defence of insanity might be pleaded, the accused's counsel would have the onus of displacing the legal presumption that every man is deemed to be sane and to possess a sufficient degree of reason to be responsible for his actions until the contrary is proved to the jury's satisfaction.

For the defence there was a possible suggestion that Dr. Lockhart might have been overcome with horror at finding that his wife had committed suicide. The main defence, however, was based on the accepted rule in McNaghten's case, namely that the accused, at the time of committing the offence, was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing what was wrong. Dr. Lockhart himself gave evidence He told how he had visualised the prospect that his wife and he might be killed. Until he was charged, he said, he was unaware of the circumstances of his wife's death. Lord Dawson was able to speak of Dr. Lockhart from personal acquaintance. He had known him closely for two or three years and for a much longer time by reputation. He had formed an opinion of his capacity and character when he served on the medical committee of the national fitness campaign, of which the witness was chairman. He gave his evidence on the strength of the history of the case, the evidence of the witnesses and his personal visit to Dr Lockhart in Lincoln prison He judged him to be suffering from dissociation between the higher and lower levels of the brain. The higher levels would be "concerned with the greater part of knowingness" Without that knowingness he could not value what he was doing and could not choose. If he could not value, he could not choose If he did not choose rightly, he had no actual power over his own conduct, no means of knowing what his conduct ought to be. In Lord Dawson's view the case conformed with a group of cases well known to the medical profession. The witness said he had taken great trouble to find out how far Dr Lockhart's memory was affected. He concluded that his memory was lacking in the essential parts of the tragedy. There was a period in the centre when the accused's memory had undoubtedly failed; around that process area it seemed that Dr. Lockhart was not clear whether he remembered or not Dr. F. H. Brisby, medical officer of Leeds prison, who had twice interviewed the accused in Lincoln prison, also referred to his memory. He said that Dr Lockhart remembered a tourniquet being on his wife's arm and he remembered handling a syringe; he had recollections of her limp body, of its coldness, and of a smell of gas. Dr. Brisby said he formed the opinion that prolonged mental stress, acting on an unstable mentality, had definitely unhinged Dr. Lockhart's mind on the night of the tragedy. He might have known the nature of the act he was doing, but would not know whether it was right or wrong. Dr. E. F. Norris, medical officer at Lincoln prison, agreed that Dr Lockhart, on the night of the tragedy, was a dissociated personality. he would be unable to exercise judgment on a question of right or wrong. Prosecuting counsel pressed these witnesses to say whether the fact that a man could get the necessary implements and could administer a hypodermic injection of evipan did not indicate that he knew what he was doing Not necessarily, replied Lord Dawson; the executive side of the mind might remain intact while the knowing part of the mind was suspended. Dr Lockhart in the witness-box had spoken of writing a letter and giving it to his wife, he had said that he remembered the purpose for which he did this. He had also written for his manservant's attention a notice saying: "Keep out, gas. Fetch police" Asked if this indicated a lack of appreciation of what he was doing, Lord Dawson answered that it showed a partial lack of appreciation. Mr Justice Singleton observed that the preparation for the anæsthetic would be considerable, could Dr Lockhart, he asked, have done that operation without knowing what he was doing? Lord Dawson conceded that the case was complicated, but stated that such things had happened before. Evidence to the like effect was given by Prof Millais Culpin and Dr R D Gillespie. The defence had marshalled a body of expert testimony which was authoritative and lucid.

The plea of dissociated personality has now been accepted in circumstances much less luridly sensational than the story of Dr Jekyll and Mr Hyde. The lay public, to whose knowledge of this aspect of criminal responsibility Robert Louis Stevenson's story has hitherto been the main contribution, may ponder the Lockhart case and carry its education farther.

Wages during Sickness

Earlier in the present year the case of Marrison v Bell caused some concern to persons interested in industrial welfare.[1] Lord Justice Scott's judgment managed to convey the impression that, where a workman was engaged under an ordinary contract of employment (by the month or even by the week), he was entitled to be paid wages during periods of sickness—to be paid, in fact, for services which he could not be present to perform. It was feared that employers, to protect themselves, would give an employee notice to terminate his service as soon as he was reported to be sick. In consequence it seemed likely that men would be reluctant to notify sickness. In Petrie v Mac Fisheries Ltd the Court of Appeal has now explained that Marrison v Bell was misunderstood. The plaintiff worked as a packer in the company's fish smoking department and was paid by the week. For short periods of illness in 1933 and 1936 he received half-pay when absent. This was in accordance with a notice posted in the company's works in 1926 stating that sick men would receive half-pay up to 21 days in any one quarter as an act of grace. There was no evidence that Mr Petrie had seen the notice but he knew of the arrangement and accepted money under it. On July 23, 1938 he became ill and was absent from his work until the following February when he was discharged. The decision in Marrison v Bell seemed to be in his favour, he therefore sued for full wages for the period of his absence. The trial court gave judgment for him. On appeal he lost his award. Lord Justice Slesser said there was no general principle of law that a man who was paid weekly wages was entitled to be paid wages for services which he would have performed but could not perform on account of illness. There were many cases of servants employed by the day, by the week or even for longer periods where it by no means followed automatically that there was a right to wages during absence by reason of illness. Everything depended on the nature of the contract of service. Marrison's case, said Lord Justice Slesser, was primarily concerned with the effect of absence on sick pay under the national health-insurance scheme. The decision did not make new law.

It is still not quite clear whether the Petrie decision alters the Marrison decision. In the Marrison case it was said that the employers could relieve themselves from liability to pay wages during absence due to sickness by making specific provision for this contingency in the terms of service. Presumably Mac Fisheries Ltd obtained this relief by posting up the notice promising an ex-gratia payment for a period up to 21 days in each quarter. Weekly wage-earners are seldom engaged under any formal contract of service. Litigation constantly arises from the consequent uncertainties.

---

[1] *Lancet*, 1939, 1, 618

GRAINS AND SCRUPLES

FROM RECHAUFFEUR

IV

IF the medical profession was organised primarily for the promotion and application of medical research, what a different world we doctors should live in! Instead during the last hundred years it has been busy getting and keeping a certain position in society. Its individual members too have had to follow the same signposts to material safety and a secure social status. If doctors themselves do not think these things important the same is not true of doctors' wives and families. As years pass the tendency to conform to the herd gets stronger, except in the most resilient minds. Even private means do not necessarily relieve the mind of these primary anxieties, in fact often the anxiety about the material future increases with accumulating wealth.

The result of this materialistic outlook is a forcible dislocation in the life of the student soon after qualification. Having got on to the first two or three rungs of the ladder of true medical knowledge, his attention is suddenly diverted to the personal economic factor which is going to be the basis of his professional life and he will be fortunate if he ever regains the serenity of his student days. As a new ideal in the "wider" life he is only too likely to take the phrase "no opposition" in the advertisements of vacancies in general practice.

Competition and opposition have become the idols of the herd and I have heard more than one lady say that Dr So and so would be more careful if there were more opposition to his practice. Careful? Yes, but of what? Of keeping up to date with medical knowledge did she mean, or of his manner of subscribing to the demands of the herd? If the medical man is only going to jump out of bed at night to an urgent case because he knows that if he doesn't somebody else will, the plea for the competitive basis for the profession is justifiable—and, as a matter of fact, the laity does consider that of all the hardships our profession has to bear, getting out of a bed before dawn is incomparably the most terrible! Do they really think that only a strictly competitive life will compel us to submit to the arduous calls of duty? If so the fear of failure or bankruptcy is going to be the basis of success, and not the following of medicine.

* * *

And don't the commercial organisations of this world know it? They invade our breakfast tables with their suggestion of "Here you can't afford to miss this one" carefully wrapped up in the intensely flattering preamble "For the Medical Profession only." They are even good enough to remind us that we have had a scientific education and that they are appealing to that careful mind of ours that is accustomed to weigh over our eggs and bacon the precise values of the scientific claims of their products. "Flatulax is a highly scientific preparation calculated in its purified methods of manufacture to supply a long-needed weapon to combat the physical and psychical lassitude that arises from the sluggish response of the gall-bladder to the relatively ineffective stimulus to the duodenal mucosa that results from imperfect assimilation." That's glory for you! And on a highly scientific basis!

From that to the pseudo-scientific basis is an easy step; witness the anticipation, by about a hundred years, of endocrine knowledge, by the more enterprising organotherapy merchants who held the field in the nineteen-twenties even more strongly than they do today. Then the most reputable manufacturing firms had to follow suit. Between them, they gave birth to families of ingeniously mixed up proportions of glandular extracts, whose infinite variety (even down to the bronchial mucosa) age cannot wither (because they were never active) nor custom stale (until other firms can think of a better one). Occasionally a vendor of something or other, having been kept waiting in a doctor's house for an unreasonably long time, will drop the mask and say with refreshing frankness and point "Dr. So-and-so has ordered *two*" And if that eminent physician has ordered two, can *you* afford to be without one? Or why not order *three* and take the lead rather than follow it? And just look at your accumulating shelf of free samples.

* * *

No doubt there is round many a laboratory corner some scientific Scholar-Gipsy

> "Born in days when wits were fresh and clear
> And life ran gaily as the sparkling Thames."

When we go up to refresher courses we come across him and his immured enthusiasms Such an one was the late Prof E H Kettle. He knew well enough how much work there is to be done in clinical research by the whole profession. He was always urging one to select or collect series of cases in general practice and work out some principles of diagnosis or treatment I think that if practitioners had the will to meet and formulate methods of treatment for a certain type of case to be used by all of them over a period of two years, such a method of research would not be ineffective But our attention is eternally being distracted by material anxieties and demands of patients (who hate to be "experimented upon"), to say nothing of hobbies and diversions, so that the advice of the Scholar-Gipsy goes by the board. Only when we see him seated by his microscope—with faculties "firm to their mark, not spent on other things"—does a certain sense of what we lose in the outside world come down rather like a cloud The solution obviously lies in freeing the would-be scientific clinician from the toils of competitive existence, and setting him to work where clinical material abounds. Socialised medicine under the great municipal councils can offer him the facilities without the slightest difficulty. How does this work out in practice?

Twenty years ago a campaign was launched by private individuals, among them Dr. F. J Poynton, Dr. Reginald Miller and the late Dr. Carey Coombs, for tackling the national problem of rheumatic carditis in children. Here and there in the country efforts were made to follow up the disease in a mass of children both in institutions and after their return home. The results were promising but inadequate for drawing final conclusions, but one effect of it all was to draw the attention of the local authorities to rheumatism As a result, a very large number of rheumatic children were withdrawn from circulation between the general hospitals, and their convalescence provided for in institutions London cases were housed in one or two large municipal hospitals, where for the last ten years or so they have been treated and observed. Such children can be followed up by house-to-house visiting, related housing conditions can be inspected, and, in the County Hall, discharged patients can be re-examined by the clinicians who looked after them. I wonder whether this unique opportunity for clinical research is being utilised to the full, or whether clinical methods are being stifled under the routine of administrative work, with its multiplicity of forms which are composed and continually amended by alert clerical minds, to categorise the various contingencies to which patients are exposed, but to which clinical facts are peculiarly resistant.

That clinical instinct can be stifled by administrative detail is a tragedy but it is common enough. In the Royal Navy, one continual perplexity for administrative folk was the nomenclature of disease, and I got into trouble on one occasion for the diagnosis of two administratively incompatible diseases (gout and cystitis) in the same individual; nor was my suggestion that all disease should be divided into two classes—(1) diseases of the head and trunk, and (2) diseases of the organs of locomotion—received with any gladness.

* * *

An exchange from private medical practice of today to state-controlled medicine, also of today, is not necessarily going to break the bonds of the clinician. Bureaucracy may be as tyrannical as private anxiety, and the fear of making an administrative error may quench enthusiasm for clinical research—or even clinical practice. As of old, work will be done where individual talent exists whatever the circumstances, though who can say that circumstances are not sometimes a driving force to individual talent? Such exceptional circumstances have been occurring in the past few years in Europe, where the normal migration of peoples from east to west has been forcibly accelerated Among the masses of refugees, there are many doctors A little while ago I was visiting the large camp at Richborough, organised by the Jewish Lads' Brigade, where well over two thousand refugees from Germany were being housed, fed and cared for. Many of them were earning between two and three thousand pounds a year before the Nazi regime Now they received sixpence and half a dozen cigarettes a week, and are grateful for it, and, though probably condemned never to return to their home, they are clean and cheerful. They are fed in three relays in a vast dining hall, and they get up concerts and entertainments regularly. There are eighty doctors there at present, but only three have British qualifications and are able to practise I was shown the sick quarters and medical, surgical and dental departments. Thrown upon their own resources, these doctors have kept their work and equipment up to date, they even have an electrocardiagraph and carry out colorimetric blood-sugar estimations I feel full of admiration for these medical men, banished from their homes and families, and carrying on in a strange land Perhaps, I felt as I drove away, for man to give of his best to his profession, he has to be untrammelled both by private enterprise and by administrative organisation At any rate there stands the hospital near to the synagogue, the meeting place of the oldest race that still inhabits, albeit in precarious guise, the face of the earth.

Next month A North-country practitioner will be responsible for these columns

LETTERS TO THE EDITOR

MORPHINE IN THE TREATMENT OF SHOCK

SIR,—Now that the treatment of traumatic shock has become a matter of national importance, I venture to draw attention to the widespread and unwarranted fear amongst members of our profession of the risk of overdosage of morphine in this condition This fear is largely due to the over-cautious teaching of the standard textbooks, as an illustration of which the following passage may be cited from Prof A J Clark's "Applied Pharmacology" (6th ed, p 241), where he states "A dose of at least ¼ grain of morphine hydrochloride is required to relieve severe pain and sometimes a dose of ½ grain is required This larger dose produces considerable depression of respiration, and in the case of a severely wounded man will intensify shock and prejudice the chance of recovery" In point of fact the effect of a single dose of ¼ grain of morphia in severe pain of any kind is purely evanescent, and it is quite inaccurate to state that a dose of ½ grain to a severely wounded man will ordinarily intensify shock and prejudice his chance of recovery, since experience proves that the direct opposite is the case

In their excellent article on shock in the "Encyclopædia Medica" (1924) Thomas and Kelly point out that Crile advocates the repeated use of morphia as a preventive in traumatic shock until the respiratory rate falls to 10–12 per minute They themselves, however, wisely state that morphia should not be used where cyanosis is present, and that it is sufficient to give it in doses such that pain and restlessness are overcome It should therefore be realised that it is impossible to lower the respiratory rate to a dangerous level with morphia (using repeated doses of ¼–½ grain) until pain has first been completely overcome

In this connexion I may be permitted to repeat a personal experience Some time ago I was called upon to render first-aid to an aviator who had crashed and was suffering from third degree burns of both hands, as well as from incipient shock His hands were completely flayed and bleeding, the nail matrices being exposed He was in extreme pain and threatened with collapse To this patient I administered gr ½ morphine subcutaneously forthwith, and thereafter gr ¼ as often as he reported the return of pain, which was approximately every quarter of an hour In all, gr 2½ morphine were administered to him over a period of two and a half hours He was then removed to hospital where he was reported to have arrived in very good condition, and subsequently made a satisfactory recovery

While indiscriminate use of morphine is not advocated, there can be no doubt that in severe pain and traumatic shock there is in general much greater danger to patients from insufficient than from excessive dosage with morphine

I am, Sir, yours faithfully,

J WALKER TOMB

Cape Town Nov 4

SPONTANEOUS EPILEPSY FOLLOWING CARDIAZOL TREATMENT

SIR,—Dr Arthur Harris's letter in your issue of Oct 28, in which he records two cases of spontaneous fits occurring after treatment with Cardiazol, prompts me to report a similar case

A well built schizophrenic, aged 22 admitted in a state of noisy and incoherent excitement, was first of all given a fortnight's course of Somnifaine and insulin narcosis with no mental improvement On the third day after withdrawal of the somnifaine she had a major epileptic fit, and three more fits on the fifth day There was still no improvement five months after admission, and a course of insulin-shock treatment was commenced Insulin injections totalled 33, and a satisfactory coma was produced on 20 occasions with a dose of 80 units During the course, however, she had an insulin fit on six days, three to four hours after the morning injection She was then discharged home much improved Three months later she was readmitted in a state of depression, and was given 5 c cm of cardiazol intravenously A strong convulsion was produced Slight temporary cardiac embarrassment ensued, and no more injections were given, but seven days later she had a spontaneous major epileptiform attack with frothing of the mouth and tonic and clonic convulsions No further spontaneous fits occurred, and she was later given a short course of insulin-shock therapy, after which she was again discharged She has now remained perfectly well for a year, only the one spontaneous convulsion has been observed There was a family history of mental disorder, but no history of previous fits, and no epileptic heredity

In this case the occurrence of postnarcosis and insulin fits suggests that she has a low epileptic threshold, and this is supported by the fact that she responded promptly with but 5 c.cm of cardiazol The spontaneous fit seven days afterwards may have been due to the presence of an increased reflex irritability persisting for several days as a result of incomplete elimination of the drug

In Hobson's case, cited by Dr Harris, the patient also had a spontaneous fit seven days after cardiazol treatment, but as more spontaneous fits followed it appears likely that a latent epilepsy lasting a few months was made manifest In Dr Harris's two cases, however, a single spontaneous convulsion occurred one month and five months after treatment, and his suggestion that cardiazol played no part in their causation is problematical There is no doubt, however, that the number of cases in which spontaneous postcardiazol convulsions occur is very small, and there seems to be no recorded instance of a permanent epileptic state being produced

I am indebted to the medical superintendent, Dr R Stewart Kennedy, for permission to record this case

I am, Sir, yours faithfully,

F T THORPE

West Riding Mental Hospital, Sheffield Nov 9

EXPECTORANTS

SIR,—Dr Gordon Ward's unnecessarily acrimonious letter calls for a reply His main criticism is that the observations lacked adequate controls, in my series every patient acted as his own control If he is unfamiliar with the method, let me refer him to pp 179–80 of Sir Thomas Lewis's "Clinical Science" (1934)

> "It will be observed that in treating chronic cases, whether we are dealing with cure or alleviation the patient himself usually forms the control, we are not often driven to the cumbersome and less satisfactory device of control by treating two groups of patients In the testing the patient is brought under observation for an adequate control period, its length depending upon the speed with which the remedy takes effect and during this period his environment is maintained as constant as is necessary to keep his condition uniform and suitable for testing"

Fig 1 in my article is correct despite Dr Ward's inability to understand it The percentage fluctuation in the output of sputum in one case was sought, this is represented by the space at the extreme right of the figure.

Dr. Ward is at pains to explain that "the value of ipecac. cannot be tested to any advantage by administering it only to those who are already deeply under the influence of another drug." Without conceding that this statement is accurate, I desire to point out that my paper contains no conclusions regarding the effect of ipecacuanha *alone*, so that the implied criticism is irrelevant. It is well known that potassium iodide and ipecacuanha are frequently prescribed together in the treatment of chronic bronchitis, the rationale being that the one drug acts as an adjuvant to the other. Furthermore, the practice is justified on the grounds that the effect of the two drugs on the respiratory tract is brought about by entirely different pharmacological actions. With these considerations in mind the two drugs were administered simultaneously in the third part of the investigation and the results are summarised in fig. 6 of my article.

I regret that I omitted to state how often the drugs were administered: they were given four times daily at intervals of four hours.

I am, Sir, yours faithfully,

STANLEY ALSTEAD.

The University, Glasgow, W 2, Nov 14

CARCINOMA FOLLOWING CHANGES IN HABITS

SIR,—To those who are studying the effect of endocrines on carcinogenesis it may be of interest to report that carcinoma sometimes seems to follow some change in the physical or sexual activity of the patient. In the course of an investigation of about 30 cases carried out some years ago, I found that this was particularly noticeable in young people. The following cases illustrate this theme.

A woman aged 26 was married in December, 1926. After her marriage she had a very much easier life in every way. Six months after marriage there developed the first symptoms of carcinoma of the rectum.

A single man aged 26 was a baker. He enjoyed life and went out frequently to evening entertainments, usually with a girl friend. In 1931 he developed gonorrhœa. He was so disgusted with this disease that he gave up all his outings and spent his spare time mooning about doing nothing. He was treated as an outpatient at a London hospital for seven months. Just before this treatment was completed he passed some blood in the stool, and this was the first symptom of carcinoma of the rectum.

A man aged 25 was in February, 1934, found to have multiple abdominal carcinomata. The first symptoms of the disease appeared in September, 1933. Eight months previously he had married a widow with a large family. Coitus occurred once a month since marriage. Particulars of his sexual activity prior to marriage were not obtained.

A man aged 50 poisoned his hand in November, 1926. He was obliged to give up work and to rest for two months. Four months later he was found to have carcinoma of the floor of the mouth.

A man aged 61 retired from manual work in November, 1926. Five months later he was found to have carcinoma of the tongue.

A man aged 44 had a family of eight children. In 1934, owing to his wife's ill health, sexual activity was discontinued. A year later the patient developed the first symptoms of carcinoma of the rectum.

In all these cases there had been some change (usually a reduction) in physical or sexual activity for a variable period prior to the first symptoms of cancer. I made this special inquiry on account of a speculation that malignant cells may make use of a normal bodily stimulus to reproduce, especially if the stimulus should become excessive. The question therefore arose: would this normal stimulus to reproduce tend to become excessive if bodily activity were suddenly reduced? Cases of malignant disease often follow injury, and it should be noted that an injury is usually followed by a temporary change in bodily activity.

Can cases such as these be explained by the research worker in the light of recent experimental work, and have changes of bodily activity (physical or sexual) been found to influence carcinogenesis in the laboratory animal?

I am, Sir, yours faithfully,

Edinburgh, Nov. 7. W. RITCHIE RUSSELL.

THE SYMPATHETIC SYSTEM IN SEGMENTAL PAIN

SIR,—Mr. Campbell's explanation of the relief of pain, in his stimulating article in THE LANCET of Oct. 28, is not convincing. I suggest that it is not the interruption of efferent but of the afferent sympathetic nerves which causes the immediate cessation of pain and distress. My reasons for thinking this are:

(1) It is hardly conceivable that the severe pain produced by already established physiochemical changes in the leg could so completely and instantaneously disappear unless a sensory pathway had been blocked.

(2) His success in cases of intermittent claudication due to senile arteritis confirms my contention, as any vascular response to efferent sympathetic stimuli could no longer exist in these cases, owing to the rigidity of the arterial tree (proved by the absence of rise of temperature in the limb after sympathetic block). On the other hand, the chemical changes in the tissues which are responsible for the pain remained the same after the block or even increased as the exercise tolerance increased. Yet after block was established these patients could walk further without pain than before. This can only mean that afferent sympathetic fibres conveying the pain via the upper lumbar sympathetic ganglia had been interrupted. This is exactly analogous to the experiments of J. C. White of Boston on patients with angina pectoris and on dogs with artificial occlusion of one of the coronary arteries. White showed that the anginal pain could be completely abolished by blocking the 1st–5th thoracic sympathetic ganglia or by cutting the corresponding posterior spinal roots, although the responsible physiochemical changes persisted, just as in Mr. Campbell's patients.

It must therefore be concluded that most of the pain resulting from injury or damage to the deeper tissues of the limbs is not transmitted through somatic sensory nerves directly to the corresponding spinal segments, but through afferent sympathetic nerves or somatic sensory nerves which accompany the former up to the sympathetic ganglia and from there through the posterior roots and spinal tracts to the brain. It is curious that a block at the level of L1. should abolish pain of the leg and foot (L4–S1.); this means that these sensory fibres probably ascend for some distance within the sympathetic trunk before entering the spinal cord through a ramus communicans. Ascending fibres of this type have been identified in the sympathetic trunk.

If the way of transmission of more deeply seated pain in the leg and foot is as suggested, then it should not be possible to abolish this pain by a low spinal anæsthetic extending only up to the level of L3.

I am, Sir, yours faithfully,

Blackpool, Nov 13. W. UNGER.

A PLAN FOR BRITISH HOSPITALS

"The old order changeth, yielding place to new"

SIR,—I can only congratulate you and your special commissioner on the courage you have shown in storming the citadel. I have waited for the howl of wrath and indignation from the old gentlemen and from all the vested interests, and have been surprised at the ineffective bleat of protest from those who feel themselves so much assailed. For when one analyses carefully the letters of two well-known physicians (who, I am glad to see, have not assumed the anonymity of some of your correspondents) and that of another surgeon, one finds mainly criticism of such detail as to whether half-time service is better than whole-time for consultants, with vague generalisations about inheritance of freedom and traditions of service mixed with disgruntlement arising from the E.M.S. And what exactly does one of them mean in referring to the class just richer than "the poor" who can afford to pay £50 in fees and expenses? I have yet to meet this class. And what does another mean when he suggests that practising consultants can give students something which whole-time teachers cannot? What is this mystic something? Instruction on investigating a patient in private who can barely afford it, or instruction in being nice to general practitioners and inviting them to dinner, or even hints on how to cover up tactfully an occasional unfortunate mistake? And is it really a good reason for siting a hospital in the midst of a big city that it can be seen by charitable laymen and so supported?

The matter is too serious to be treated thus, it is hardly reasonable to expect your commissioner to lay down a perfect plan for all aspects of medical service in an article of a few pages. Rather we must consider it as a useful starting point from which to put our house in order. One might assume from some of your correspondents that all is quite well with the voluntary hospitals and consulting medicine, and hence there is no need for them to think even in terms of constructive criticism. Actually the voluntary hospitals are not only dying but are in that moribund state in which patients fail to realise their condition. It is easy to talk of the voluntary hospital tradition, and easy to quote statistics about their financial health in the mass so long as one ignores their state of equipment or their rebuilding requirements, it is easy, too, for some to ignore the failure of recent appeals for money for current expenditure, and convenient to forget that patients must still often bring their own butter and eggs to supplement the one square meal given a day, and to turn a blind eye to the overworking and underpayment of nursing staff. Could the voluntary hospitals survive the extra expense of fair feeding of patients and staff and fair working hours for nurses?

As to rebuilding, the story is a sorry one. Three or four London hospitals, on cramped and noisy town sites, have built new structures incapable of elasticity or of the addition of new departments when such inevitably become necessary. Big hospitals or little hospitals refuse to combine or coordinate their activities or resources, and some excellent suggestions in this direction were never adequately explored before being turned down. Hospitals still fail to coördinate in coöperative purchase. And how long does an X-ray plant, for example, have to remain out of date before a medical committee can insist on its replacement if a generous donor cannot be found?

The only way to save the voluntary hospitals is to adopt some contributory or provident scheme and to change them from institutions dispensing charity to the poor to hospitals for the middle classes, but doctors (and hospitals) still oppose such schemes, quarrelling generally on adequacy of fees and not on matters of principle, just as they fought for their fees when the N.H.I. scheme was mooted or when the L.C.C. wanted consultants—while little or no mention is ever made of the public interest. Surely this is the paramount consideration, and the medical profession will deserve all the suspicion of the public until these problems are discussed wholly on this level.

Why should hospitals be in the centre of towns where sites are cramped, noisy and dear? Surely it is just as far from the periphery to the centre as from the centre to the periphery, once a patient with pneumonia has withstood the transference from his bed to the ambulance, the remaining journey is easier, and the half-hour from Highgate to University College Hospital is no more arduous than the half hour from Gower Street to Highgate. A little study of the areas of the peripheral belts of a town can be quite instructive.

To what good end should the public be induced to prefer certain hospitals? Even now this allegiance wanes as municipal hospitals are so rapidly on the upgrade. The public needs *local* hospitals all over the country, all of them adequately staffed with men of sufficient training, experience and rank—hospitals in *any* of which a patient can safely entrust himself. When the municipal hospitals provide full outpatient and follow-up services, and adequate medical staffs, which they must soon do, the voluntary hospitals will find their position still more insecure. Anyone who has worked for the London County Council or seen and studied the work of the Middlesex County Council (for example, the fine new medical and obstetric blocks at the Redhill hospital) and who is aware of the 48-hour week for nurses in the M.C.C. and the 96-hour fortnight in the L.C.C., of the more adequate feeding of staff and patients, will not be so impressed by the advances in hospital matters under the voluntary system. It is not long ago that one London hospital advertised daily in the *Times* personal column for a hæmatological microscope—most dignified—hadn't they got one?

There is another important aspect to be mentioned. Decentralised, regionally controlled hospitals for selected communities can be built on cheap open sites, where functional considerations can be easily combined with elasticity for further development, and money can be saved by the elimination of unnecessarily expensive external and internal finishes more suitable for a Corner house lavatory or a de luxe cinema. A new hospital need not cost £1,000,000 for 400 beds. A saved £500,000 may not capitalise all the necessary staff expenses but will go a long way towards it.

I think your commissioner's scheme is capable of expansion to allow, if necessary, of private consulting practice available for any rich people who may be left after the war, to allow also of greater coordination between the hospital and the general practitioner, and to incorporate many other health services that should be part of a large hospital. I am wholly in favour of the medical superintendent who alone can properly appreciate the medical functions of a hospital in relation to administration. I wholeheartedly agree with Dr. Dyke and Dr. MacWilliam.

Could you not now, Sir, follow up your commissioner's report with a *Lancet* commission to elaborate the scheme? Many young consultants, however much they may hope one day to pay supertax, will be only too glad to help you.

I am, Sir, yours faithfully,

Ashford, Middlesex, Nov. 12. HUGH GAINSBOROUGH.

SIR,—Whatever may be the advantages of bureaucratic control of our hospitals they will not be enriched by arguments based on false premises Your special commissioner, disregarding this fundamental of fair controversy, proceeds by inference to condemn London consultants as dishonourable and dishonest. He declares, furthermore, that they are faced with bankruptcy. As to the causes of the decay of the consultant, one of these is alleged to be the growth of efficient general-practitioner firms. The astonishing claim is made that such a partnership practically never needs a consulting physician This is tantamount to declaring that the well-qualified physician of the firm will never require a second opinion other than that which could be provided by one of his partners How such omniscience is to be attained in general practice is not explained It is only approached after a lifetime of service at a large hospital where the acquirement of knowledge is accelerated by the criticism of colleagues In point of fact it is just these efficient firms of general practitioners which supply the consultants with the major part of their private work The members, by virtue of their efficiency, not only recognise the occasions when help is needed, but also do not fear to ask for it The suggestion that consultants get their patients by the charity of the G.P.s is not merely ludicrous; it is an insult to the integrity of the general practitioner. Incidentally, perhaps your commissioner can explain on what grounds the practitioner and his family seek consultants' advice when they themselves are ill?

The overcrowding of the London specialist population is given as another cause for the supposedly unhappy plight of the consultant who, it is said, can only with difficulty be distinguished from the consultoid. At first glance this appears to be true, but in actual fact the presence of consultoids and even of European professors is, in peace-time, of complete indifference to the true consultant. The latter being one who sees patients only when sent to him by the G P has nothing to lose by even the most foreign competition The G P. safeguards him as well as the patient The consultoids, on the other hand, compete amongst themselves for the favours of that insignificant body of monied and none too intelligent persons that shuns the orthodox, short-circuits the general practitioner, and favours the charlatan.

Far from being moribund, true consulting medicine was flourishing until the outbreak of war. Your commissioner appears to have been deafened by the plaintive howling of the wolves, thus failing to note the contented purring of the lions

As for the scheme of decentralisation, its waste of time and energy and its elimination of the all-important personal relationship between patient, practitioner, and consultant condemn it outright

Let us have state aid for the voluntary hospitals, but not state control We have seen the fate of consultants who entrusted themselves to the Ministry of Health and the British Medical Association and have learned our lesson, albeit a little late In future no medical service shall be foisted upon the hospital staffs by the ill-considered scheming of busybodies, who with futile minatory gestures seek to hide the grievance which goads them—the realisation of their failure as doctors.

I am, Sir, yours faithfully,

A H. DOUTHWAITE.

Harley Street, W 1, Nov 15

SIR,—As a member of one of those general practitioner firms, the growth and efficiency of which your special commissioner suggests is one of the reasons for the decay of London consultant practice, I would like to record my own experiences We have indeed found that there are comparatively few medical problems which cannot be accurately solved by local investigation and discussion between partners—but we have not found that we therefore wished to dispense with the help of the consultant. The consultant is not simply a diagnostician whose chief function is to see what the G P. has failed to see, he is not simply an "eye-wiper." His great office is to confirm the diagnosis, emphasise the correctness of treatment, and reassure the patients and their friends about the accuracy of prognosis The patient who visits Harley Street after a thorough examination by his own doctor and who comes back having heard that his illness has been correctly diagnosed and is being properly treated, does not, in my experience, feel that money and time have been expended needlessly. On the contrary, he is usually well-pleased and, I venture to suggest, has an increased chance of a speedy and complete return to health.

Many consultations are arranged each year in this practice, and I doubt if increasing efficiency—assuming this to be present!—is tending to decrease their number I must admit that, from time to time, the consultant does detect a serious error in diagnosis, but this happens most often when dealing with the frank rarity usually in Dr. Walshe's speciality! As medical practice now stands, or as it stood before the war, I for one would deplore the disappearance of the consultant and would feel that my patients were indeed the poorer in time of illness

What the position will be when Harley Street and all it means has ceased to exist is difficult to visualise I imagine that patients will for many years to come continue to demand what they think the best at whatever financial sacrifice, whenever their own or their friend's health is concerned. It is not impossible that the day will come when the sick public thinks that the best can be obtained from some source other than Harley Street But this change of attitude will not come in an instant and may well need some major calamity to produce it. If the present catastrophe has as one of its results this change of attitude then indeed the consultant, as he now exists, will be seen no more But there will be many general practitioners, men in large partnerships such as my own as well as single-handed doctors, who will feel that this is yet another crime for which the Nazi regime must one day answer.

The plan for British hospitals has much in it which is clearly desirable, but it has surely been born for reasons other than the saving of medical consultants from ruin.

I am, Sir, yours faithfully,

"JUNIOR PARTNER."

Nov. 12

SIR,—No-one can deny that your special commissioner's article is constructive, or that his plan contains some definite improvements on our present system, such as the treatment of private and hospital patients in the same building, and the mass purchasing of basic hospital supplies I am convinced, however, for the following reasons, that his scheme for nationalisation would not ultimately be to the advantage of the sick or of British medical science

(1) Nationalisation of the hospital services is analogous to industrial combines and multiple shops, whereby competition and individual initiative are destroyed. If the hospital services should be nationalised, then logically the same applies to every other human activity, in other words, we should have complete Bolshevisation.

(2) A department under the control of a corporation, whether it be a national hospital corporation or a municipality, is fettered by red tape and liberty of action is restricted.

(3) Your special commissioner states that the competitive firm spirit would be retained. But this competitive spirit is still further stimulated in the voluntary system by the chiefs of the firms being engaged in private practice. There are many men whose interest in their work is a sufficient stimulus to further efforts, but there are also many who having attained the peak of their desires and a fixed and comfortable income slacken their efforts, though not enough to warrant their dismissal. Such men, having done first-rate work as assistants or registrars, would do second-rate work as deputy-directors or directors, were they deprived of the stimulus of private practice. Your commissioner dogmatically asserts that the paid part-time worker is not a success and that private practice after a time becomes more important than public service and a dichotomy of loyalties springs up. How can he seriously make such a statement when he considers the extremely high standard of work done in the voluntary hospitals? I do not know whether he has mingled much with members of the honorary staff of hospitals (he may be on such a staff himself) but I have yet to meet one who would shirk his duty to his hospital or hospital patient. This assertion is a slight on the medical staffs of every voluntary hospital, and is a contradiction of his previous statement that the standard of work is higher in the voluntary than in the municipal hospitals.

(4) He suggests that each firm should be directed by a whole time director and deputy-director (corresponding, I presume, to the present full physician or surgeon and assistant physician or surgeon of the voluntary hospitals), with an average salary of £1600 and £800 respectively. In the London teaching hospitals it is unusual for a man to become an assistant physician or surgeon before the age of 35, or a full physician or surgeon before the age of 48 or 50. Thus in the scheme envisaged, after a man has spent five or six years and £1200–£1800 on his medical education, and a further ten years in acquiring specialised knowledge and attaining consultant rank, he can look forward to a salary of £800 at the age of 35 and £1600 at the age of 48. Such remuneration would not attract the majority of men with ability, so that the standard of work would be considerably lower than under the voluntary or a part-time system, and the general practitioner would be unable to secure "a first-rate opinion for his patients."

(5) Your commissioner states: "For the very rich there would still be the private consultant." Since the hospitals would be staffed by whole-time men, I cannot imagine what sort of a person this would be, how he could have obtained his specialised knowledge, and what claims he would have to be considered a consultant. He would, in effect, be a "consultoid", thus for the rich too there would be inferior service. In fact, under this scheme the quacks in Harley Street would flourish and prey on the public even more than they do today.

(6) One of his arguments in favour of decentralisation is "the manifest benefits of country air and surroundings to patients, nurses, staff and students." With the exception of certain diseases of the lungs, which are amply provided for under the present system, it has not been proved that patients recover more rapidly in the country than in the town. I am on the staff of a small country hospital as well as a teaching hospital in the City of London. I have not observed that the patients in the country respond more rapidly to the treatment of their toxic goitre, gastric ulcer or pernicious anæmia than those in the town, nor that the staff of the town hospital is less healthy than the nurses and medical practitioners in the country. The disadvantages to a medical staff of living in the country are enormous. Unless each hospital had library facilities equal to those of the Royal Society of Medicine, the staff would be seriously handicapped in not having an efficient library comparatively near at hand. Meetings for the discussion of medical problems would be poorly attended, and the frequent interchange of opinions would suffer. It occasionally happens now that a man with specialised knowledge is asked for his opinion on a patient in a hospital to which he is not attached, such visits would be almost impossible were the hospitals scattered about the country. Private patients often insist when they are in a nursing home under the care of a consultant that their practitioner should visit them once or twice a day; this would obviously be impossible in the country.

Two of your commissioner's reasons for recommending nationalisation are doubt concerning the future finances of the voluntary hospitals and the altruistic one of rescuing Harley Street consultants from penury. If the voluntary hospitals remain as they are, a Government loan will not be required, and any deficiency in voluntary contributions can be balanced by the inauguration of provident and insurance schemes. Your commissioner's remarks about London consulting medicine dying might equally be applied to every trade and profession in Britain, with the exception of the manufacture of armaments, during the last two years. Before the war consulting medicine was adversely affected by the series of international crises, for the slumps on the stock exchange produce their reverberations in Harley Street. The present danger of bankruptcy of some Harley Street consultants appears, however, to be the result either of their entering a scheme similar to the one under discussion or of the evacuation of large numbers of the London population. There is no evidence that they were approaching penury before the recent international disturbances. Once the trade of the country recovers, there is no reason why Harley Street should not recover as well. The statement that the services of a consulting physician are practically never needed owing to the efficiency of the physician in general practitioner firms is too puerile to discuss. It is the efficient practitioner who, realising what an enormous subject modern medicine is and being concerned more about the welfare of his patient than his "pride," calls upon the consultant to a greater extent than the inefficient, who often mistakenly feels that by doing so he loses prestige in the eyes of his patient. I agree that the London "specialist" population is overcrowded, but this is due to the large number of pseudo-specialists, who trade on a Harley Street address. One of the greatest benefits to society would be some reorganisation to curtail the depredations of these gentlemen.

I am, Sir, yours faithfully,

Harley Street, W.1, Nov. 7. A. W. SPENCE.

SIR,—THE LANCET deserves the thanks of the whole profession for the report by its special commissioner. His plan should be the subject of discussion at every medical society throughout the country. Alternatively the scheme suggested by "Psychiatrist" might be adopted. I do not suggest that the plan is perfect but I strongly deprecate the attitude of some of your correspondents, prosperous consultants probably, who seem to think that scoffing and satire are appropriate methods of dealing with the problem.

The future of medical practice is a serious problem whatever may be thought by such correspondents. The development of efficient general practitioner firms is most desirable and will certainly reduce greatly the need for consultants. In my opinion some of the finest brains in the profession are engaged in general practice though they are often unable to develop their ability to the utmost from lack of time when in single-handed practice. The large amount of free service and the heavy financial responsibilities make the fees charged by consultants inevitable, but they are none the less a serious matter. The result is that any patient too ill to visit the consultant at his own rooms and living more than 10 or 15 miles from London or a big city has no chance of securing his help unless he pleads poverty as a reason for reduced fees. When I was in general practice 150 miles from London I recall three-figure fees demanded from patients ill able to afford them, but making the sacrifice in the frequently futile hope that life might be saved as a result of the expenditure

That the London specialist population is grossly overcrowded will be admitted by all who know anything of it and this is in some measure due to individuals whose only claim to the rank is the possession of private means adequate to maintain them in decent comfort and relative idleness in Harley Street or the immediate vicinity. Such a scheme as your commissioner has outlined may serve to reduce some of the present evils. But the man trained solely in hospital is seldom so good a physician in consultation as one who has had some experience of private practice. Therefore part-time service after the first four or five years should be preferred to whole-time except perhaps for a few possessing exceptional gifts for teaching or research, for whom special appointments adequately remunerated should be available.

The criticism of the opponents of decentralisation of hospitals found an appropriate answer in your last issue a page or two further on in the account of Bart's present activities under the heading In England Now. The same column in the issue of Oct. 21 gave equally valuable support to the views which your commissioner put forward.

I am, Sir, yours faithfully,

Nov 19. F.R.C.P.

SIR,—Dr. Walshe is under a misapprehension if he thinks the schemes afoot are levelled only at the consultants The Goth is already knocking at the gate of the general practitioner, as he will see if he reads some of the letters in your issue of Nov 11. During 46 years of general practice I never once heard anyone sigh for a state service Advocates of a state medical service appear to have the same opinion of the G.P as Iago had of Othello—that he . . .

> "will as tenderly be led by the nose
> As asses are"

I hope the general practitioners will not part with their liberty and sell their birthright for a mess of pottage If a man wishes to attain full fruition, he must live dangerously and not be "cribbed, cabined and confined" in a state service

May I put in one word for consulting surgeons? Of all the men I have met during a long life, they are the most generous. No surgeon ever turned a deaf ear to my appeal and I never pleaded in vain for a patient Why should a surgeon not have a fee of a hundred guineas for a major operation on a wealthy patient? If one considers the number of years he has to spend acquiring his skill during which he is earning only a pittance, we must acknowledge that adequate fees are but bare justice.

I am, Sir, yours faithfully,

Beckenham Nov. 13 J. H E BROCK.

SIR,—We have read with interest the correspondence in your columns on your special commissioner's plan. It may not be out of place for students to write to a periodical which normally draws its correspondence from the qualified, since this is a question which affects those with the hope of medical practice before them as much as those who already derive benefit from the status quo

We fully appreciate the desire of many of your correspondents for freedom of action and individuality in their work, but these essential factors must surely depend upon some basis of security if they are to be used for the progress of medicine The system of voluntary hospitals is, to say the least, in an uncertain financial position, and we can see no future for organisations already verging on bankruptcy which after the war will be largely deprived of donations from an impoverished upper class There seems, therefore, an opportunity for reorganisation in a more stable form, and it is for this reason that we welcome any system of collective planning. As students, we look forward to a time when we may receive a fixed salary, dependent upon our merits, which would allow time to carry out our work without spending our energy on making a fortune or struggling to make ends meet.

The main objections raised by your readers have been based upon the assumption that in any form of whole-time hospital employment all individuality and freedom of action must of necessity be lost We should not forget that the practice of medicine is one of the most vital existing social services, and has long ceased to be merely a financial enterprise As against the health of fifty million inhabitants of Great Britain, we have the plea for anarchy of some forty thousand doctors. Their assumption that, under whole-time employment, all freedom of action and of individual effort would be lost, amounts to an assumption that this service would be badly run. We find no suggestion in the article discussed that the practitioners' choice of specialists should be dictated or that progress within this organisation should depend on other than "the individuality, restless energy and imaginative vision" (to quote another letter) of those employed in it.

In comparison with the financial difficulties which have been and will continue to be precipitated by the war, the objections to the establishment of hospitals on the outskirts of London seem insignificant It is well known that many of the voluntary hospitals occupy sites the vacation of which would provide them with immense wealth From this source we could finance modern buildings and make a contribution towards their maintenance The occupation by the London hospitals of key business and commercial sites is an anachronism, dating from the time when they drew their patients from their immediate neighbourhood. With modern transport facilities, the inconvenience to staff, patients and visitors, is small as compared with the immense financial and organisational advantages

We are only too aware that in many organisations there exists little freedom of action and those in control of the production of red tape have run amok. But are we to compare an unstable existing system with so stultifying an organisation as the E.M S or the worse parts of the Civil Service? The power to avoid the errors of the past is surely in our hands

We are, Sir, yours faithfully,

B DELISLE BURNS,

Bedford Square, W C 1, Nov 12 A. DELISLE BURNS

FACIAL PARALYSIS

SIR,—With reference to Mr W M. Morris's excellent series of cases of facial paralysis treated surgically (THE LANCET, Sept. 2, p 558) may I suggest that diathermy should be used in all catarrhal cases? In recent cases it will hasten recovery in those who would recover without treatment, and it will reduce to a minimum those that do not recover com pletely. I have had good results up to nine months after the onset. If recovery is not obtained within three months, the nerve should be exposed. I devised an easy method of doing this some forty years ago. Chisel off the tip of the mastoid on a level with the stylomastoid foramen and throw it downwards with the insertion of the sternomastoid attached. The nerve is exposed where it leaves the foramen and can be followed upwards in the canal or downwards if it is severed below it. By this method a lot of time is saved in fat or muscular subjects and it is next to impossible to injure the nerve while exposing it.

I am glad Mr Morris has again exposed the fallacy of using only an empty sheath for transplantation. His warning against electrical stimulation should also be taken to heart by those treating cases of infantile paralysis.   I am, Sir, yours faithfully,

Melbourne, Oct 15.   W. KENT HUGHES.

MEDICAL LITERATURE

SIR,—In his delightful article on medical literature, Sir Robert Hutchison ascribes the deterioration of style in modern writers to the wide use of shorthand, the typewriter, and dictation. Perhaps his censure on these aids to composition is excessive. If bad writing were caused largely by them, we should have good writing by a return to the goosequill.

Surely one of the causes of a clumsy and inaccurate style is the failure to cultivate a sensitive ear by reading aloud and so checking our visual impression of the page. This method of improvement is favoured by the use of dictation and it is a habit which helps to eliminate what is superfluous, a habit almost as effective as the lawyer's rule of drafting—"Proceed on the assumption that every unnecessary word costs half a crown." I am, Sir, yours faithfully,

HARLEY WILLIAMS.

National Association for the Prevention of Tuberculosis,
Nov 18.

THE UNEMPLOYED AND THE E M S

SIR,—I heartily sympathise with "Unemployed," whose letter was published in your issue of Nov. 11. But the newly qualified are not the only sufferers from the scourge of unemployment which has newly afflicted the profession.

I am a woman graduate of 3½ years' standing, with special experience in anæsthetics awaiting a whole-time vacancy in this subject. When war broke out I was employed as a resident in a large municipal hospital, with one month of my year's appointment to run. On receipt of the enrolment form from the E.M.S. I duly filled it in, thereby committing myself to full time service under the scheme. I therefore did not apply for any advertised vacancies.

Four weeks later I received a notice stating that, as I was under contract *to a local authority*, I was ineligible for service with the E.M.S. Shortly afterwards the local "stand fast" order was withdrawn, the new residents came in and I went out. Since then I have been unemployed. There are few vacancies for women, except in maternity and child welfare, in which subjects I have no experience and less interest.

I have written to the Ministry of Health stating that now that the cause of my ineligibility is removed, I wish to be enrolled, and stating my present plight. That was two weeks ago. I have received no reply. I suspect my case of being by no means unique.

In lavishing their favours on the resident staffs of voluntary hospitals, the E.M.S. is being grossly unfair to those in the municipal hospitals, many of whom are more experienced and since they are less surrounded by—I almost said restricted by—specialists and consultants, more self-reliant than their colleagues in the voluntary hospitals.

I am, Sir, yours faithfully,

Shropshire, Nov 18.   D.A.

IT ISN'T CRICKET

SIR,—Relying on the spirit of honesty and fair play, which is a time-honoured tradition among your countrymen as well as mine, I venture to call attention to several inaccuracies in the review of my book, "Shock and Related Capillary Phenomena," published in THE LANCET of July 8. You state that I devote the first eight chapters to a summary of the pathology and physiology of the capillaries. Actually only the first four chapters discuss capillary phenomena. Again, you say that I make little mention of the mass of evidence contrary to the theory of traumatic toxæmia published in recent years. Chapter 10 is devoted to an analysis of such evidence, published since 1923. You suggest that I believe so firmly in traumatic toxæmia that I overstate the case. The significance of the evidence, *upon which the theory of* traumatic toxæmia was based, is depicted and acknowledged. But the combination of two reciprocal factors, *capillary atony* and *tissue anoxia*, is emphasised repeatedly as the essential mechanism of shock (Chapters 11 and 23). You say that the individual reader must decide how far my book clarifies his ideas on shock and how far it increases his confusion. An inaccurate and misleading review may be more confusing than is an application of the principles of capillary pathology to the problem of shock.

A reviewer may and should express his critical opinions of a treatise, but a resort to statements contrary to facts is distinctly "not cricket."

I am, Sir, yours faithfully,

VIRGIL H. MOON.

Department of Pathology, Jefferson Medical College,
Philadelphia Sept 6.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 4, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1333; whooping cough[1] 141; diphtheria, 893; measles,[1] 175; enteric fever, 36; pneumonia (primary or influenzal) 534; puerperal pyrexia, 110; cerebrospinal fever, 16; poliomyelitis, 18; polio-encephalitis, 1; encephalitis lethargica, 7; continued fever 1 (St Pancras); dysentery, 17; ophthalmia neonatorum 71. No case of cholera, plague or typhus fever was notified during the week.

Deaths.—In 126 great towns there was no death from smallpox or measles, 3 (0) from enteric fever, 3 (1) from scarlet fever, 5 (1) from whooping-cough, 22 (1) from diphtheria, 23 (4) from diarrhœa and enteritis under 2 years, and 40 (4) from influenza. The figures in parentheses are those for London itself.

Ealing, Darlington and Liverpool each had one death from typhoid. Fatal cases of diphtheria were scattered over 17 great towns, Liverpool reporting 4, South Shields 3. Birmingham had 4 deaths from diarrhœa, Liverpool 13. In Birmingham and Bristol 3 deaths were attributed to influenza.

---

[1] Measles and whooping cough were [illegible] by provisional order which [illegible] become [illegible] may be in arrears for several weeks.

Prof. Grey Turner has been elected a corresponding member of the Surgical Society of Buenos Aires and an honorary member of the Society of Hospital Surgeons of Santiago de Chile.

. . . . IN ENGLAND—NOW

(FROM OUR PERIPATETIC CORRESPONDENTS)

IT was the sandbags that gave Brompton the first impressions of emergency. Nurses, doctors, clerks, porters and willing outside volunteers digging furiously among the shrubberies filled 20,000 of them and they made the hospital look more like a fortress than ever. The "standby" telegram brought a feeling of unrest and discomfort, but it gave time for final preparations, and there was almost a sigh of relief when at midday on Sept. 1 the "clear hospital" order came through and thought could be translated into action. Thirty miles away, Frimley had been warned, and by 3 o'clock as many of its patients who could go home without detriment to their own health or that of their families had left; those with artificial pneumothoraces carrying a complete little dossier of their cases and instructions when and where to report for the continuance of this vital treatment, which even wars must not interrupt. All who still needed definite institutional treatment or had no suitable homes to go to were retained.

At Brompton as if by magic a fleet of cars (volunteers all) poured into the Fulham Road and, smoothly directed by previously trained traffic controllers, were away in 90 minutes with 102 patients, their luggage, notes and X rays, 30 nurses and as much equipment as could be put in. With them went two removal vans with the entire beds and bedding that Frimley would need. Frimley was ready. With two London policemen patients, who delayed their evacuation for the purpose, the incoming stream of cars was marshalled, and after a strenuous few hours in that sweltering heat, the new arrivals were bedded, fed, and their medical and nursing needs supplied. By 9 P.M. Frimley was asleep in the dark, holding 205 hospital cases and 30 extra nurses, in place of its normal 150 sanatorium cases. "Blackout" screens had been prepared for essential service rooms, but the long, many-windowed wings had their fuses withdrawn, each patient and nurse being given a torch, and all that was seen was the occasional flash of these as the new nurses hurried round finding their bearings and accommodating themselves to makeshift conditions. One hitch there was, but that was soon remedied, for before the dew was off the grass next morning a Brompton house-physician arrived with his car piled high with bedpans. Twenty-eight stretcher cases still remained in Brompton, and when they arrived in huge Green Line ambulance coaches they had great tales to tell of the air-raid warning in London and the pleasures of being pushed into corridors and how hard it was to breathe with a gas mask if you were short of breath already.

Brompton was empty, but not idle. The wholesale evacuation of sanatoria and the closure of many clinics meant a dangerous situation for the civil population that had to be met. On Monday the outpatient department started work, and carried on with no break in continuity throughout the day. Maintenance of artificial pneumothorax treatment was a primary need. With the radiographic department working at full pressure and a willing band of skilled helpers an all-day artificial pneumothorax clinic came into force on that Monday, dealing with an average of 350 cases a week, with a peak on one of the early days of 150 at one session. Another serious situation was the sudden and complete cessation of all possibilities for thoracoplastic surgery. Many patients had one or two stages of the operation and delay physically and psychically most detrimental ithin 14 days of the outbreak of war major ns were being done in the emergency theatre, d been prepared on the ground floor in one ace-time consulting-rooms Now surgical ce again in full swing, all the 75 beds civilian sick are occupied, and the usual post-graduate teaching are once more in

tlr
as n
status

It was a picnic; but those who helped Brompton to make good during that busy September counted themselves lucky to have plenty of work, and good work at that, to do when they heard the woeful tales from elsewhere of empty hospitals, and doctors and nurses keyed up and keen to serve.

* * *

Railway journeys before the war were a joy. Now as the train meanders from station to station, I long for a car and a widow's cruse of petrol. Still, there is one consolation. I get more time for reading my Penguins. A few days ago I picked up a new "special" by W. B. Curry, the headmaster of Dartington Hall School, called "The Case for Federal Union." I read it with all the greater interest because of a letter to the *Manchester Guardian* which caught my eye recently. It was signed by 57 men of science, all of them fellows of the Royal Society, and it urged that when the war ends a new international order going far beyond the League of Nations should be set up. All nations prepared to renounce war between themselves should be invited to unite under a common federal government, which would have the power to use armed force against aggression, would control the raw materials of undeveloped territories in the possession of member states, and would educate backward communities without racial discrimination. No mean undertaking! Still I do not think it is impossible. Mr. Curry puts his case something like this.

In 1914 we entered a war with the professed object of putting an end to German militarism. After only a quarter of a century we are engaged once more in the same enterprise. In the last war Germany was decisively beaten, and the peace terms were dictated by the allies. We imposed on Germany terms which it was thought would cripple her so completely that not in our life-time at least would German power and ambition again be able to assert themselves. We fought a war, we won it, and we failed to achieve the object for which millions died.

We have, we say, no quarrel with the German people; our quarrel is with the German government. That is what President Wilson said when he entered the war in 1917. If we content ourselves merely with the defeat of Hitler and his government and allow ourselves to believe that Hitlerism alone is an obstacle to the peace of the world, then we shall no more achieve an enduring peace at the end of this war than we did in 1919. Then we were content with isolating and trying to eliminate the immediate cause of a particular outbreak of an epidemic disease, without bothering to ask what were the basic conditions which make it possible for this sort of outbreak to occur. War has become endemic in human society and since the continuance of war is probably incompatible with the survival of civilisation, speedy research into fundamental ætiology is needed.

If one observes that certain diseases are common in some parts of the world and absent in others, these diseases cannot be ascribed to factors in the human constitution which are common to all humanity. Rather must one isolate the factors which distinguish those parts of the world in which the disease occurs. In the same way, one may observe that some human groups are in the habit of fighting while others never dream of it. Each kind of group contains the same selfish, pugnacious human beings. The only respect in which the fighting groups differ from the non-fighting groups is that the fighting groups are sovereign states, each acknowledging no authority superior to its own will. The states of Pennsylvania and New Jersey are constituent members of a larger unit organised on federal lines. The governments of these states have authority only over strictly internal affairs. They have no armed forces, no foreign offices, no power to impose tariffs or interfere with free travel, since these are all matters affecting the United States as a whole and are dealt with by the Federal government. Because there exist in the United States organised control of the affairs common to the whole Union, problems are dealt with in an orderly fashion long before they are sufficiently acute to make an outbreak of war likely If one of the states of the American Union were to produce a Hitler who set about organising storm-troopers so as to capture the machinery of the state and later impose its will upon its neighbours, he would be arrested by a few policemen on the charge of conspiring to break the peace As it has turned out Hitler could not be interfered with in the early stages because Germany is a sovereign state and the world community has no government, and no effective legal procedure for dealing with international crime at a pre-war state

* * *

In countless ways the world is already an international community Science and medicine, art and literature know no frontiers In our international exchanges occasions for conflict must sometimes arise Hence the need for government, since government is *the only alternative to combat that mankind has hitherto discovered* The world suffers from too much national government and too *little* international government If after the war we are to build something better, we must make it clear to our allies, to neutrals and to the German people, that we are prepared to pool with them our resources and to surrender part of our sovereignty in return for similar action by them as a contribution to a new commonwealth of nations

The League of Nations was not a government and was never intended to be It was an association of sovereign states, which, because the states insisted upon retaining their sovereignty, could only reach decisions after unanimous agreement Such a system has in the past never worked On the other hand the alternative method of inter-state government, the federal method, has been found to work satisfactorily in the United States of America, the Swiss Confederation, the Dominions of Canada and Australia, and the Union of South Africa If it is to become a matter of practical world politicals, during this war there should be close study of the problems of world government so that plans will be ready when the war is over Such plans should be publicly discussed and if agreement can be reached, a war aim with an appeal to reasonable men on both sides might emerge

Rational planning now is important for another reason In the last war too many people were content that we should win the war first and then decide what use to make of the victory They forgot that unless a nation exercises the most resolute self-control it is bound as the war progresses to become filled with a hatred and bitterness that make a decent peace impossible It is easy now to say that we have no hate for the German people It will not be so easy when the casualty lists begin to be published and our towns begin to be bombed If this victory is to be worth securing we shall need to keep steadily in mind, day in and day out, that this war must have a constructive purpose, and that that purpose would be frustrated if we allowed ourselves to be dominated by mere hate

* * *

In this wearing time it is the small things that have annoyed Most of the air raid wardens have been models of politeness, apologetically drawing attention to the fact that the curtain is quite efficient but not quite drawn, or quite firmly pointing out that the substance was not light proof Down our street there has been but one exception: a self appointed sub warden of the female sex who knocked rigorously and, when the door was opened, said, "Ahm from the warden's house" Fortunately there were two wardens already in the dining room discussing the large window, so we were able to deal firmly with her Then there was the big burly man, quite polite, but not quite tactful when he emphasised the fact that the light through a certain window could be seen *right down the road* Those last few words were redundant, the fact that the light was seen, owing to a certain door being left open, was enough But worst of all was the fool of a husband who was taken out to see a window at which his wife had been working for two days, and then called out, "My dear, you've not begun to get that window dark yet" It is things such as these that precipitate a nervous breakdown; the long mental strain might do no harm if a spark were not added at the end

Shopping down the High Street for some time was almost limited to black-out materials Woolworths was out of curtain rings of a certain size and of rolls of sticky paper with which we usually seal down parcels, and a girl was standing at the counter at which dark shades and torches were for sale Small shops that we have almost forgotten, such as that where schoolgirls buy their paints and drawing-pads, have come into their own again with unexpected stores of drawing-pins and brown paper All the activities have not been commendable There was for instance the notice in the window of our chief drapers, one of a chain of stores throughout London announcing a material at one and-six as "absolutely" light-proof When the *young lady who sold it was shown that by* merely holding it to the light one could see that this was not so, she replied that it was if you fluffed it up The young man was more outspoken He agreed and said he had drawn the manager's notice to the false description but had been told they had got to get rid of the stuff Such methods of salesmanship are deplorable at such a time and come hard upon those with lesser incomes They believe they have purchased a black-out cloth at eighteen pence a yard; they find by the time they have had to put it fourfold on their windows that it has cost them six shillings In the defensive war of nerves that all are now waging, it is annoyance and a sense of injustice which makes the harassed person's mind finally give way We have to keep our eye on Sept 2, 1942, and it is small points such as these which will determine whether we shall last out the three years the Government has set before us

It is the same with the petrol ration There are those who assume that a doctor can get as much as he likes, and will rush about the country just as though there were no war, there are those who expect us loyally to keep our private driving to the ordinary ration, but who have no idea that we should economise on our emergency units I lay no claim to any special virtue when I say that I am getting some amusement out of doing much of my work on foot or by bus in these quiet times of practice, keeping my emergency ration for when I am suddenly called out or for triangular rounds that do not lend themselves to other transport Again, what will happen by Sept 2, 1942, depends, to a very great extent, upon how many members of the community can be changed from the first of these categories to the second, and from the second to the third

The Lancet 100 Years Ago

Nov 23, 1839, p 342

From a leading article

In Edinburgh Dr HAMILTON, *the Professor of Midwifery*, has recently departed this life, and created a vacancy in one of the University chairs. The election of his successor is vested in the Town Council, who really seem as though they hoped to do right in the appointment though they appear not to know how   What is to be done with the six candidates? Hustle them well in a sack, and then let the town-clerk seize the top man by the hair The present plan of intrigue and solicitation cannot be worse Nay it is not so bad The best teacher may be caught in the one case, in the other the Council will have the best courtier In either event, what *injust*[illegible] to the students how great a wrong to medical [illegible] My Lord Provost and Honourable Councillors [illegible] candidates compete Put them to the *test* [illegible] their capacities to fill the post of oral teacher by lectures on the practice of midwifery

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By MEDICUS, M.P.

ONE of the most important activities of the House for members of His Majesty's Forces was the getting of the statement on allowances to dependants out of Mr. Hore-Belisha. Owing to pressure from parties on all sides of politics the allowances to children have been raised. It has also been made possible for a further payment up to £2 a week to be made "exclusive of and in addition to the other allowances" in cases of hardship due to special factors such as rent. This will add to the ten million pounds of children's allowances which the present scheme costs the Army a further two million pounds, which is expected to be doubled "in due course" The allowances to wives cost twenty-five million pounds and there is the possibility of dependants (such as parents) other than children being included in the future The increase is satisfactory to the House and is the result of representations made privately by members to the ministers concerned and of a debate in the House in which the strong feeling on the matter surprised the Cabinet. The function of the House as guardian of the rights of the citizen—and the armed forces are citizens undertaking especially arduous and dangerous duties—remains unimpaired.

• • •

Another example of this function of the House was in the discussion on the Official Secrets Bill drafted to meet the situation which arose out of the case of Mr. Duncan Sandys, M.P. and his questions to the Minister of War As Mr. Wedgwood Benn said when speaking for the Opposition on Wednesday last, "We are dealing with something which is to become permanent legislation, and it is something to our credit that in the middle of the war the House of Commons should be enlarging the liberties of the subject in this way." And he said further, "it is something which the neutrals should observe, that this is the only place in the world where a deliberative assembly is enlarging the freedom of the press" What the changes in the Official Secrets Act amount to is that "power to require information" from anyone by the police (and only by the police) is granted only in cases which deal with espionage It is perhaps equally significant of the feeling of the House that this Official Secrets Bill debate began at 6 34 with a statement for the Government by Sir John Anderson and finished at 7 P.M., when the House adjourned. Cynics may suggest that this is due to the blackout. But when members are really to some extent divided in opinion the debates go on quite late The education debate on the next day began at 4 17 and the House did not adjourn before 10 51.

• • •

The education debate was one of very great importance from the civilian point of view and if it never drew such a big gathering of members to listen as a statement by the P.M. or Mr Churchill would have done it drew a gathering of M P s almost everyone of whom had some special knowledge and almost everyone of whom wanted to speak

Mr. Lees-Smith in opening the debate made a particular point of public health and medical services in connexion with schools, basing himself, as he said, on "a very careful study of the possibilities of distributing doctors and nurses" made in a previous debate on evacuation by Dr. Haden Guest. This made it plain that "there are enough services available, properly distributed, to provide for a nucleus for the hospitals, ready for emergency, and at the same time to carry on our public health services, our medical services, to provide mobile clinics in reception areas and, what is most urgently needed, the service of consultants, of which the civil population is now being deprived." Mr. Lees-Smith also dealt with the subject of communal meals, the problem of providing leisure occupations for children and expressed his great appreciation of the very valuable work done in the reception areas and said how this had "come from the leaders of all the churches who have described them as heroes and marvels" To conclude this opening speech a striking testimony to education was given as the result of a War Office inquiry on the condition among the new militia men, 250,000 in number. Offences serious enough for the commanding officer not to deal with them himself "can be counted on the fingers of one hand" And, Mr. Lees-Smith added, "That is a really remarkable record, without precedent among tens of thousands of men for that length of time in the British Army or in any army at any time, and that is the justification for the schools of this country within the last 10 years"

Mr. Kenneth Lindsay, an old Oxford Blue, who is now parliamentary secretary to the Board of Education, replied with a modified rhapsody on the delights and advantages of children being in the country—he looked forward to a great new body of children for the first time seeing an English spring next year—a rhapsody modified because it was necessary to give facts, figures and conclusions about children in the town (evacuation) areas and in the neutral areas as well as in the country.

Of the nursery school age there are about 150,000 children, that is children under five, in the reception areas, and some of them are in units as nursery schools, in some cases in ideal conditions Speaking of children as a whole, although Mr. Lindsay said an accurate figure was impossible, there are about 900,000 children in the evacuation areas, 1,700,000 in the neutral areas and 2,500,000 in the reception areas. Because children cannot be allowed to run wild the schools and the neutral areas are to open "as soon as possible" and schools in the evacuation areas are to reopen "on a voluntary basis" (no compulsory attendance), for children of the years eleven to fourteen, when some form of air-raid protection is provided.

The difficulties of reopening schools in the evacuation areas are not only those of providing protection, they are those due to the commandeering of school premises for A.R.P. and other purposes in whole or in part In Manchester more than half the school buildings are so requisitioned or commandeered, in some other towns the figures are lower, but in London the number is great. It may indeed be necessary to have double shifts in some town schools because of this, or schools and civil defence will have to share premises

These figures and these considerations apply mostly to elementary schools The figures for secondary schools are different Figures for certain areas are interesting but need a geographical knowledge of the area in question for their precise interpretation Newcastle evacuated 80 per cent. secondary schools, London 60, Portsmouth 71, Southampton 74 and Manchester and Birmingham over 50.

• • •

Another aspect of education referred to by Mr. Lindsay was the provision of communal meals, which he referred to as "the natural extension of our school meals policy" The overhead charges in connexion with communal meals—provision of premises, cooking, service, &c, will be paid for by the Government out of the billeting fund Mr Lindsay thought that under the circumstances a really good meal could be provided at from 2½*d* to 4*d* Unfortunately, what one may call the county authority reaction to the communal meals suggestion is very variable Some counties have done nothing at all It seems, indeed, as if the Ministry will have to "persuade" certain authorities before any developments will occur

Mr Lindsay gave a rosy picture of the school medical and public health medical services and said quite truly that they had revolutionised the health of the school child "during the last thirty years" On the immediate problem Mr Lindsay said that "a band of inspectors, doctors and nurses" had flowed out from London, Manchester and elsewhere to the reception areas About Manchester and some other areas I do not know, but about London the nurses in the band were very few indeed and quite insufficient, and the doctors were absent up to a fortnight ago and the inspectors were none too many

The school medical side of the reception areas still indeed leaves much to be desired, and if Mr Lindsay would add a memorandum on "School Medical and Nursing Services and how to get them," to the other excellent memoranda already issued, he would be doing much good in the country and carrying out his own enthusiasm in a practical way Lord De La Warr, the Minister of Education, listened to the debate, the solitary lord in the Lords' gallery He would probably agree.

FROM THE PRESS GALLERY

Education and School Medical Services

IN the House of Commons on Nov 16 Mr LEES-SMITH said he warmly approved the decision to reopen the schools in the evacuated areas He could not contemplate 750,000 children spending the next three years without any education at all, and there were only two alternatives to reopen the schools in the evacuated areas or compulsorily to evacuate the children so that they would get their education in the reception areas In time of war, he contended, it would not be practicable to enforce a system which went contrary to the deepest human convictions One of the main purposes of opening the schools was to have a central organisation around which they could gather all those services which were not directly educational, but which between them were almost as important as teaching itself Schemes for milk in schools, medical service, nursing service, the treatment of minor ailments, dental clinics, and so on had practically come to an end, because the only unit on which they could be based had been closed down In the early stages of the war doctors were concentrated in the hospitals and were now compelled to spend their time perhaps playing billiards or golf while services outside were being starved in every direction It must be possible to mobilise the medical and nursing services so as to enable them to carry on their work outside the hospitals, while allowing them to stand by to return to their posts if air-raids started Dr Haden Guest in the recent debate on evacuation had made it plain that there were enough services available, to provide for a nucleus for the hospitals ready for emergency, the public health services, the medical services, mobile clinics in reception areas and consultants for the civil population Referring to the problem of physical health Mr Lees Smith said that he understood that the National Fitness Council still existed through the Act of Parliament, but that its grants had been withdrawn He hoped it would now be admitted that it had been a failure and would be brought to an end, its work being assigned to local authorities

Mr KENNETH LINDSAY, parliamentary secretary to the Board of Education, said that for two years the National Fitness Council had been trying to make a fitter Britain, but its efforts had had to be postponed for the moment The Government were anxious that all schools should open as soon as possible, and the Minister for Home Security was asking regional commissioners to use their good offices where local difficulties were preventing reopening The Minister had issued to all authorities and chief constables a circular asking them to release school buildings as soon as possible A circular was also being issued on communal feeding When London children were scattered from the Wash to Land's End there were difficulties in supplying a proper medical service, but a brave attempt had been made to meet them The difficulties in regard to milk in schools were now also being overcome The problem of free meals hardly arose, because owing to the billeting arrangements the children were all fed on the same basis The provision of communal meals was the natural extension of the school meals policy It should be possible to get a really good meal at these centres for from 2½*d* to 4*d* In neutral areas where the schools were opening the school medical service was operating It was not so easy where there was only a skeleton service, as in the evacuation areas, but they were trying to keep the children clean and now that the schools were being opened the service was being extended day by day Some authorities had displayed great resource, others had been so handicapped by the demands of Civil Defence, the commandeering of clinics and cleansing stations, and in other ways, that they had neglected this aspect of the problem There were about 150,000 children under five in the reception areas, and there were 10,000 unaccompanied children Nursery schools were out of the question, and it was not a problem which could be solved by creches and day nurseries. A number of interesting voluntary schemes had been started and the Minister of Health and the President of the Board of Education had worked out a satisfactory scheme for dealing with this problem

Viscountess DAVIDSON said that nobody had the slightest idea what effect modern war was going to have on the children There were thousands of children running wild mentally and physically, somehow or other they must be given education and discipline, and, as far as possible, in calm, ordered, normal surroundings Mr CLEMENT DAVIES said he dreaded the coming of winter If there was an epidemic the authorities would be faced with an extraordinarily difficult situation There would be the difficulty of doctors getting to patients owing to the blackout and the shortage of nurses He hoped this would be attended to at once

Allowances for Dependants

Replying to questions by Mr DOBBIE, Mr EDE, Mr GEORGE HALL and Mr PRICE Mr HORE BELISHA announced that the Military Service (Special Allowance) Advisory Committee would be empowered to grant henceforth up to £2 a week (exclusive of and in addition to the other allowances received from service departments) instead of as at present a maximum of £2 inclusive of such allowances This would enable additional assistance to be granted in cases of hardship due to special factors such as high rent In addition the Government had decided on the conditions and the time to raise the allowance for children after the first child, and in future instead of these rates being 3s for the second child, 2s for the third and 1s each for subsequent children they would be 5s for the second child and 3s each for all other children. Thus, to take the large family, for which it had most frequently been represented that the allowances were insufficient, in a household with eight children, there would be paid in respect of a soldier on the lowest rate of pay to the wife 17s, plus 7s allotment in respect of himself equals 24s, plus 5s for the first child equals 29s plus 5s for the second child equals 34s, plus 3s each for the remaining six equals 52s;

and further, in the event of any special circumstances such as high rent, a claim could be made and met to the extent of a further £2 a week should the claim be justified. In order that the new scheme might come into operation with machinery adequate to cope with it, payment of increased children's allowance would begin in three or four weeks' time and would be retrospective to Nov. 13 or the nearest related pay day.

QUESTION TIME

E.M.S. and Specialist Treatment

In reply to Sir RALPH GLYN Mr. ELLIOT said: I am not aware of any difficulty in providing adequate specialist treatment for ophthalmic cases or that, in general, there has been interference with necessary treatment in other types of case. As to the position of the specialists in general, I am discussing with a special committee the whole question of the terms of service of specialist and other members of the E.M.S.

Sir F. FREMANTLE: How soon may we expect the result of this consideration?—Mr. ELLIOT: I hope it will be possible to make a statement next week.

A.R.P. Equipment for Doctors and Midwives

Mr. BULL asked the Home Secretary (1) what representations he had received from local authorities in favour of the provision of midwives and doctors in evacuation districts with civilian duty respirators; and whether, in any case, he would consult representative local authorities to ascertain their views on the matter and (2) whether it was his intention to provide doctors and midwives in evacuation areas with protective clothing and special gas-masks for use in air-raids when they might be carrying on normal or special activities; how much of this equipment had been issued; how it was being issued, in which districts it was being issued; to whom application for it should be made; and when it was expected that distribution would be completed.—Sir JOHN ANDERSON replied: I have had one or two such representations, and others have, I believe, been made to the Minister of Health. I regret that I cannot undertake to extend the issue of special respirators and anti-gas equipment to persons outside the public air-raid precautions services and the emergency hospital service.

Hospital Supply Depôts

Miss WARD asked the Minister of Health (1) whether adequate material for the provision of supplies and equipment for civil hospitals had been issued to the hospital supply depôts and (2) whether the hospital supply depôts had been in a position to function adequately, as laid down in the regulations governing the setting up of women's voluntary service organisations.—Mr. ELLIOT replied: Hospital supply depôts are voluntary organisations, and no official regulations have been made for them. The depôts obtain their supplies for the making up of hospital comforts and accessories through funds raised by local appeal, by arrangements with the local hospitals, and from the Central Hospital Supply Service. I understand that on the outbreak of the war the depôts found difficulty in obtaining supplies, but that the situation has now improved, and I am doing what I can, through the supply service, to assist.

Petrol for Coroners

Mr. PARKER asked the Secretary for Mines whether he was aware that many coroners had not been granted a reasonable supply of petrol to enable them to carry out their work; and whether he would take steps to remedy this difficulty.—Mr. GEOFFREY LLOYD replied: Instructions have already been issued to divisional petroleum officers to grant to coroners the necessary allowances of petrol to enable them to carry out their essential duties.

Non-combatants in the R.A.M.C.

Mr. HARVEY asked the Secretary of State for War whether his attention had been called to the recommendations made by tribunals that certain men registered by them for non-combatant duties only should be given service in the Royal Army Medical Corps; and if he could give an assurance that such recommendations would be carried out.—Mr. HORE-BELISHA replied: Such men will be employed only on non-combatant duties, either in the Royal Army Medical Corps or elsewhere.

Replying to a further question by Mr. HARVEY, Mr. HORE-BELISHA said that whether these men were employed in the Royal Army Medical Corps depended on whether there were the necessary vacancies for them.

Spectacles and the Combatant

Mr. SALT asked if soldiers requiring to wear spectacles would be kept out of the front line of attack, in view of the danger to themselves and to their comrades which would be incurred by the breakage or loss of their glasses while in action.—Sir V. WARRENDER replied: No, Sir. A soldier is not posted to a combatant unit unless his sight attains a reasonable standard without glasses. The extra risk incurred by wearing glasses is negligible.

Inoculation against Enteric Fever

Mr. LEACH asked whether, in view of his repeated assurances that the inoculation of soldiers was a voluntary treatment, he proposed not to stop the pay of uninoculated soldiers suffering from enteric fever during their illness.—Mr. HORE-BELISHA replied: Refusal to be inoculated does not render a soldier liable to stoppage of pay.

Vaccine Lymph

Mr. LEACH asked whether the soldier who died recently from post-vaccinal encephalitis after recent vaccination at Leeds was vaccinated with Government lymph; whether any rabbits had been used in the manufacture of the lymph in question; and what steps his department were taking to prevent the occurrence of such cases so far as the manufacture of lymph was concerned.—Mr. HORE-BELISHA replied: The soldier in question was vaccinated with Government lymph, that is calf lymph, and this is the only lymph which is employed to vaccinate soldiers. Rabbits may occasionally be used at an earlier stage in the process of the production of the lymph, but there is no evidence that post-vaccinal encephalitis is attributable to this. Everything is done, in accordance with the standards of the Therapeutic Substances Act, to ensure that the lymph is safe.

The Milk-in-Schools Scheme

Mr. MESSER asked the Parliamentary Secretary to the Board of Education, what steps were being taken to ensure that the children who were receiving milk at school before the war were now receiving it whether evacuated or not.—Mr. KENNETH LINDSAY replied: In the reception areas the scheme is generally functioning normally so far as the local children are concerned. The evacuated children who were receiving free milk in their own areas are usually continuing to receive it in the reception areas. Many of the evacuated children whose parents were paying for milk in their own areas are continuing to receive it. There has been an inevitable falling off in the consumption of milk by children in the evacuation and some neutral areas where schools are closed pending the completion of air-raid precautions. An increase of consumption may be expected as more schools are opened in both types of area.

Extra Rations for Tuberculous Patients

Mr. PARKER asked the Chancellor of the Duchy of Lancaster whether it was intended to allow an extra ration of butter, milk and other dairy products, when rationed, to tuberculous people, particularly children.—Mr. LENNOX-BOYD, parliamentary secretary to the Ministry of Food, replied: The subject is under consideration in relation to the rationing of butter.

Vitamins in Margarine

Mr. CREECH JONES asked the Chancellor whether, in view of the lower consumption of butter, and the need for safeguarding the nation's health he would consider the compulsory vitaminisation of all margarine.—Mr. LENNOX-BOYD replied: A large proportion of the margarine for domestic consumption is already vitaminised. I see no reason at present for making vitaminisation compulsory.

Duty on Cod-liver Oil

SIR ADRIAN BAILLIE asked the Chancellor of the Exchequer whether, in view of the impossibility of obtaining adequate supplies of British cod liver oil from Newfoundland and other parts of the Empire, he would consider removing the tax on Norwegian cod liver oil —Captain CROOKSHANK, financial secretary to the Treasury, replied The Minister of Food has under consideration the *question* of ensuring proper supplies of cod liver oil, and, as at present advised, the Chancellor sees *no* reason to contemplate any change in the import duty on Norwegian oil

SIR ADRIAN BAILLIE asked the Chancellor of the Duchy of Lancaster whether, in view of the fact that there were ample supplies of cod liver oil to meet all requirements including children and nursing and expectant mothers who had been evacuated, he could say why the British suppliers were only supplying one third of the normal requirements at a price which was double what it was two months ago —Mr LENNOX BOYD replied Deliveries of cod liver oil through the trade have been somewhat reduced with the object of conserving stocks pending the completion of plans for safeguarding future supplies, but adequate quantities are available to meet all the requirements referred to The rise in prices is less in this country *than in others*, and is due to increased cost of raw material and reduced turnover

Medical Glucose

MR GRAHAM WHITE asked *the Chancellor* if he had now been able to arrange for a sufficient supply of maize to ensure the continuous manufacture of *medical glucose* —Mr LENNOX BOYD replied Arrangements have been made to allocate regularly *supplies of maize* to producers of glucose (two thirds of *their working capacity*) sufficient to enable them to produce a *substantial* part of their normal output The allocations will cover *the manufacture* of medical glucose

REORGANISATION OF THE E M S.

AND IN THE STAFFING OF FIRST-AID POSTS

ON Nov 21 the Minister of Health met representatives of the advisory committee set up a month ago by the Central Medical War Committee and agreed on revisions of the terms of service of doctors in the E M S He also announced changes in the duties and remuneration of doctors at first-aid posts

ADVISORY COMMITTEE'S RECOMMENDATIONS

The advisory committee had put forward a number of recommendations for the reorganisation of the E M S, of which the following are the more important

(1) There should be three classes of officer

Class I—Whole time officers, resident or non-resident, who will not be allowed to engage in private practice, but who may be allowed to hold paid teaching, examining and other academic appointments

Class II—Part-time officers, resident or non-resident, who will be free to engage in private practice Such officers will be liable for duty as and when required, the salary or retaining fee to cover all such duties

Class III—Part-time officers paid on a sessional basis

(2) The authorised class I establishments should be the minimum consistent with efficiency and should comprise administrative officers, house-officers, officers of the standing of registrars, resident surgical and medical officers, and other key officers

(3) Class I officers within the authorised establishment should be called up on enrolment and employed and paid at the appropriate rates

(4) (*a*) *Under the new arrangement doctors of recognised consultant status would be eligible for* appointment within the authorised establishment—e g, those who are now enrolled or employed in classes A (*d*) and (*e*) *of the existing service*

(*b*) Those engaged under the new plan would receive a fee at the rate of £500 per annum from the Ministry for the balance of the period for which employment is contracted for under their present agreement No number of sessions per week or other limit of service would be laid down, but they would be expected to render as much service as might be necessary without any increase in remuneration

(*c*) They would not be liable, as in the case of whole time officers, to serve anywhere in the country They would normally be attached either to a single hospital or to a group of hospitals, on the understanding that their services might be required in special circumstances at other hospitals within a reasonable distance

(*d*) Officers not required to live away from home, and stationed at hospitals more than two miles from their homes, would be paid a travelling allowance Officers required to live away from home would receive free board and lodging, or £100 a year in lieu thereof

(*e*) A limited number of specialists would be expected to travel anywhere within the sector and possibly outside it Their travelling allowances would be adjusted accordingly

(*f*) The advisory committee would endeavour to induce those at present enrolled on a whole-time basis at £800 and over to accept the new proposal If individuals insist on the terms of their present contract the Ministry will be bound by it, in the same way as those now serving whole time are bound by the conditions of the contract, including the obligation to refrain from private practice

(*g*) Class II officers, as they are liable for whole-time duty when required, should be entitled to official leave with pay, and to sick pay during temporary absence

(5) Appointments should be made to class III only where a practitioner, not receiving a part time salary or retaining fee, is called to attend patients within the scope of the E M S (*a*) at a local authority hospital with a resident medical staff, (*b*) at a hospital in buildings specially adapted for the purpose, this hospital having a resident medical staff, or (*c*) at a hospital to which are attached class I officers, other than house-officers, undertaking clinical work

(6) All practitioners not enrolled in class I, II or III, treating at voluntary hospitals patients coming within the scope of the E M S, should be remunerated in the following way The Government should add to the maintenance cost payable to the hospital under the existing arrangement an *agreed amount* in respect of medical services, other *than those* given by the resident medical staff, the hospital to pass such payments directly to the practitioners undertaking the work, to the hospital staff fund, or to a group staff fund, as the staff may desire.

(7) There should be special provision for payment in respect of mileage for class III officers

(8) (*a*) The Ministry should now decide the establishment of house-officers necessary to staff the beds officially authorised to be set aside for the purposes of the service in the grouped hospitals

(*b*) The hospital authorities to which emergency house-officers within the establishment are allocated should, in consultation with the group officer make the necessary appointments, the Ministry paying such hospital authorities at the rate of £200 per annum per authorised houseman plus board and lodging.

(*c*) Hospital authorities would be free to pool the salaries of the house staff, including the amounts received from the Ministry in respect of emergency house staff, and apportion it between the house-officers generally.

(*d*) The permissive arrangement set out in paras. (*b*) and (*c*) should be available to both voluntary and municipal hospitals

(*e*) The Central Emergency Committee would not recommend for appointment to the service any practitioner within six months of registration. Hospital authorities would be asked to make their junior house appointments from practitioners within six months of registration and to limit those appointments in all cases to six months

(*f*) There should be established a new category of practitioners in the E.M.S. consisting of practitioners who have served for at least six months as house-officers and who have not been qualified for more than three years. Such senior house-officers would be enrolled by the Ministry as members of the service and paid at the rate of £350 a year, plus board and lodging.

THE MINISTER'S PROVISOS ACCEPTED

The Minister accepted these recommendations subject to the following observations.

The establishment of class I officers will consist of a nucleus staff, the size of which will be determined by the minimum requirements of each hospital. The requirement not to engage in private practice must be strictly observed by these officers.

In the case of class II officers, to whom a part-time salary of £500 a year is to be paid, the establishment will be determined on the basis that only part-time work will be required at present, but that if hostilities become so intensified as to require prolonged additional work no claim for additional remuneration will be made. In so far as there are vacancies in the class II establishment for officers who have been or may hereafter be enrolled for whole-time service but not called up, they will be eligible for employment on the same terms as those already serving. In the event of whole-time officers being transferred to class II the above arrangements will continue in operation for the remainder of the period for which employment was guaranteed under the terms of their original contracts

Where class II officers who have served for three months are absent on leave or through sickness no deductions will be made from their salary, other officers acting as their substitutes without extra remuneration. The travelling allowances for class II officers will be fixed, having regard to radial distances in excess of two miles from their homes.

As regards recommendation (6), the arrangement would not operate in hospitals where class I officers (other than administrative or house-officers) or class II or III officers were employed. The Minister is prepared to fix a flat rate of 1s. 6*d*. per day per bed occupied by a case within the scope of the E M S. He will also provide payment for medical attention on outpatients at the same hospitals by adding 6*d* to the sum already payable to the hospital for each outpatient attendance

In applying the pooling arrangements proposed for house-officers, officers seconded to hospitals (including municipal institutions) other than those by which they were appointed may be regarded as belonging to the latter hospitals.

The appointments at £350 a year referred to in recommendation (8) (*f*) will be strictly limited in number, and house-officers will have no right to succeed automatically to them on the termination of their house-appointments

The classes of case for which the E.M.S. are employed are as follows:—

(1) Civilian casualties arising in Great Britain from hostile attack, or injured persons taken from ships damaged by enemy action

(2) Casualties and sick of all kinds from H M. Forces and women's organisations attached thereto, the police, or among prisoners of war and interned persons

(3) Unaccompanied children evacuated under the Government evacuation scheme This does not cover other evacuated classes who are the responsibility of the local authority if they do not make their own arrangements.

(4) Accidents incurred by civil defence volunteers in the performance of their duty

(5) Patients, not in any of these categories, transferred from one hospital to another under the emergency hospital scheme by arrangement with the hospital officer.

Consideration has also been given to the position of officers who are now serving full-time with the E.M S but who although called up by the group officers had not entered into written contracts. The Minister will regard these officers as employed on the same terms as those who have entered into written agreements provided that they are now prepared to enter into such an agreement. The same options will then be open to them as if they had been serving under such an agreement from the beginning

The advisory committee agreed with the Minister's observations, provided that the rate of 1s 6*d* per bed is accepted as a war-time figure without prejudice to what should be the proper rate in peace-time, and will be subject to review at the end of the first six months of 1940

STAFF OF FIRST-AID POSTS

The Minister has agreed to certain changes in the arrangements for staffing first-aid posts A medical officer will be in complete charge of each post instead of being only responsible for the training of the personnel, as at present He will also be responsible for stores and the general maintenance of the post and any correspondence on administrative matters relating to the post, so that he will, in effect, be acting as a temporary officer of the local authority He will be expected to visit the post at least three times a week and be prepared to attend during an actual air-raid, if required. One or more other doctors may also be retained to attend during a raid, but they will have no responsibility for the general supervision of the post. These changes will apply only to the more vulnerable areas, and mobile first-aid posts in those areas will be included in the arrangements.

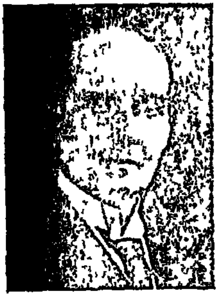
Local authorities will be authorised to pay doctors a salary of £75 a year for each aid post, employment being for six months subject to a month's notice on either side. In addition, if a doctor is required to attend the post in an actual air-raid he will be paid a fee of one and a half guineas for a session of not more than two hours or three guineas for a longer session. This scale will take the place of the payment of twenty guineas already in operation In first-aid posts situated at hospitals the arrangements will be modified to suit the circumstances

OBITUARY

WILLIAM PROUT

K C M.G , O B E , M D EDIN

Sir William Prout died at Lingfield, Surrey, on Nov 18, at the age of 77 He had been connected throughout his long life with tropical medicine and spent much of it actually in the tropics His father, Mr William Prout, lived in Mauritius After Prout had graduated at Edinburgh University in 1884 he was almost at once appointed assistant poor-law medical officer in Mauritius Three years later he was transferred as assistant colonial surgeon to the Gold Coast At this time the British administration was confined to the coastal belt of territory and the revenue of the colony was small Consequently the expenditure on public works was also limited, and since the causes of most tropical diseases were then unknown, these two factors combined to make the country a hot bed of tropical disease Prout made the most of the opportunities and his studies embraced a wide range of diseases In 1893 he was promoted to be head of the medical department of Gambia and here he acted also as chief magistrate During the following year he saw military service as medical officer in charge of the base during the campaign against the notorious slave raiding chief, Fodi Silla In 1895 Prout again moved on, this time to become head of the medical department of Sierra Leone and an official member of the legislative council, at the same time he was M O H of Freetown and a J P In 1906 he retired on pension, settling in private practice in Liverpool, and he almost at once became lecturer at the university school of tropical medicine In 1912 he was appointed medical adviser to the Colonial Office at Liverpool, and when the last war broke out he entered the R A.M C He served in Egypt and was twice mentioned in despatches After the war he was appointed senior medical officer to the Colonial Office and made a member of the Colonial Office advisory medical and sanitary committee for tropical Africa. His residence in London made it possible for him to be selected as an honorary physician to the Hospital for Tropical Diseases in Endsleigh Gardens. Prout was a fairly prolific writer on yaws, malaria, blackwater fever and filariasis, not to mention meteorology In 1888 he married Mary Mackenzie of Montrose and by her he had one son and one daughter



Elliott & Fry

A J R O writes "Prout had an astute brain and possessed keen powers of observation which enabled him to acquire a wide practical knowledge of tropical diseases. He was well able to apply this knowledge in diagnosis and treatment After retiring he kept in touch with officers serving in the colonies and maintained a keen interest in the medical and health services especially in the African colonies His advice was always sound and for this reason generally accepted by his colleagues In private life he was inclined to be of a retiring disposition although of a kindly nature He was always happy with a book on travel, especially if it was about Africa His was a full and useful life"

MABEL CAMPBELL

M.A , M.B ST AND

Dr Mabel Campbell died on Nov. 3 at Allendale as the result of an injury to the spine some months earlier She fell on the stairs when visiting a patient in Newcastle-on-Tyne Dr Campbell was one of the eight daughters of John Campbell, D D , of Kirkcaldy, Fife, of whom four entered the medical profession She studied at St Andrews, taking her M.A in 1906 and a medical degree in 1909 After house appointments at Newcastle eye infirmary and the Dundee maternity hospital she settled in Newcastle, where she joined the staff of the maternity hospital and was attached to the municipal child welfare department. At the same time she held office as anæsthetist to the Royal Victoria Infirmary For twelve years she was in partnership with Dr Ethel Williams, who writes "There was a light-hearted courage and sense of competence in the way in which Mabel Campbell met the difficulties of life and which carried her through the long and painful illness she knew could only have one termination She always expected fair and friendly conduct from those for whom and with whom she worked, and just because she expected it she got it It was the Franciscan spirit carried into the struggles of the feminist movement It is now many months since Newcastle saw her dashing along the streets in a car in which no one else would have felt themselves safe, but it will be long before her vivid personality is forgotten She was a first-rate general practitioner, with the wisdom and knowledge of human nature which that difficult professional walk demands, an expert obstetrician and gynæcologist, and a skilful anæsthetist At the Princess Mary hospital and the Gables maternity home, as well as at the Newcastle mothers and babies' welcomes, she will especially be missed"

HEINRICH VON NEUMANN

Dr J Popper writes Professor Neumann died recently in New York, an exile from his native Vienna This brief sentence hides the tragedy that came into the life of one of the most eminent doctors in Austria Neumann's clinical reputation extended throughout Europe. Kings and princes, statesman and diplomats, artists and actors, crowded to his consulting room, and the Duke of Windsor was among the many who revelled in his wit

As a research worker Neumann will be remembered for his contributions to the pathology and physiology of the labyrinth, the clinical importance of the internal ear and its relation to the brain and cerebellum, and the diagnosis and operative treatment of the diseases of the internal ear. His textbook on the cerebellar abscess is widely known As a result of his deep study of intercranial complications he developed in a large degree the operative technique of the mastoid and devised an improved method of dealing with otogenic meningitis

This picture of Professor Neumann would not be complete if I did not mention the human side of the man He was a brilliant teacher He had a natural gift for practical psychology which enabled him to understand students and his clientele. His medical instincts and critical judgment made him much sought after He had an extensive practice, but no man or woman was turned from his consulting room because of lack of money. It is indeed a tragedy when such *a brilliant man reaches the age of sixty-six and then* suddenly finds himself robbed of his personal fortune, *estimated at £120,000, and driven* from his native Vienna Neumann was *too human to* survive such a loss. The *medical profession is the poorer by* his untimely end.

F. W. M. CUNNINGHAM

D.S.O., M.D. EDIN., F.R.C.P.E., M.R.C.P

Dr. Francis Cunningham, who died suddenly at Hove on Nov. 10, aged 55, was son of William Murray Cunningham, W.S., of Glasgow, and nephew of Prof. D. J. Cunningham. His early education was at Glasgow Academy and at Fettes College At Edinburgh University he graduated M.B., Ch.B. in 1907 and then held resident posts at the Crichton Royal Institution, Dumfries, and at the Royal Sussex County Hospital, Brighton While house physician at the latter he wrote his M.D. thesis on encephalitis lethargica.

Kent Lacey

In 1909 Cunningham joined the R.A.M.C., serving chiefly in India, until his arrival in France with the I.E.F., in Sept 1914. Quickly promoted to the acting rank of Lieut.-Colonel, he was put in command of the 73rd Field Ambulance, was *twice* mentioned in dispatches and in March, 1918, *awarded the D.S.O Soon after the armistice,* while *still in France, he met with the injury* which was to occasion his death twenty-one years later In 1919 he resigned his commission and settled in Hove, where three years later he was elected *to the staff* of the Royal Sussex County Hospital, becoming senior physician in 1938

Latterly, owing to the increasing calls of consulting work, he gave up private practice, retaining only his medical officership to *Rottingdean School, a post in* which he *found* particular interest and pleasure. His *advice* was widely sought by his colleagues in Brighton, Hove and mid-Sussex, and his early death has robbed them of a good physician and a valued friend At Edinburgh a prominent all-round athlete and a Scottish international hockey player, in later years he was a fine golfer and a keen salmon-fisher, *well known* on the Tweed

Dr Cunningham married in 1913 May, third daughter of Dr W. N. Maccall of Manchester and Southport, who survives him.

The hours of opening of the Royal Society of Medicine Library are being extended until 8 P.M., with the possibility of further extension till 9 P.M. later *if it* is found that users will brave the blackout Successful experiments have been made in the library with red lights and blue-painted windows instead of curtains

Mr. *Godfrey* Heathcote Hamilton will retire from the secretaryship of the National Hospital, Queen Square, at the end of the year He has served the hospital *for* nearly thirty-eight years

Medical News

Responsibility of Voluntary Hospitals

The chairman of the War Emergency Committee of the British Hospitals Association has issued a statement to hospitals on the present responsibilities of their board of management The voluntary hospitals were requested by the Ministry of Health to reserve beds for casualties at the outbreak of war, and it was understood that the Ministry would pay the cost of these beds Civilian sick are essentially the responsibility of the hospital authorities They have to continue to find the funds to maintain this service, and there has been no suggestion that the Ministry would give financial aid It is the duty of the hospital governors to arrange the medical services for civilian sick in their hospitals and this they are able to do by using their normal staff—i.e., those not in the Emergency Medical Service, reinforced by those who are in but whom the Ministry allow *to be used Should* these be insufficient it would be necessary for the hospital authorities to augment them by recruiting temporary medical staff Should any of the hospitals undertaking work *for the* Emergency Medical *Service get into financial* difficulties the Ministry would of necessity have to come to their financial aid. The medical services for the emergency scheme have been organised by the profession in consultation with the *Ministry of Health*, and the Ministry pay the doctors for their services direct The Ministry have agreed that while no casualties are taking place they will allow doctors paid by them to help the hospital authorities in their usual capacities. The responsibility for the running of their hospitals remains with the governing bodies, and *it is for them to make available the* casualty beds for which the Ministry make the payments The extent to which civilian beds are reopened is a question in which the Ministry are naturally concerned They have to be satisfied that evacuation can *take place* and *that reopening does not mean reopening at the expense* of the sector scheme. On the other hand, the limitation of the extent of reopening must be the hospital authorities' decision since the financial liability is theirs.

Recent Appointments in the R.A.F.

The following have been granted commissions in the medical branch of the Royal Air Force Volunteer Reserve as additional consultants: Group-Captain J. J Conybeare, M.C (*medicine*), Group-Captain G. C Keynes (surgery), and Group-Captain C. P Symonds (neurology)

Dr R. D. Gillespie has been appointed specialist in psychiatry in the rank of wing-commander.

Air-Commodore William *Tyrrell*, D.S.O., M.C, *principal medical officer* to the Training Command, has been granted the rank of air vice-marshal

Group-Captain F. N B. Smartt, principal medical officer to the Bomber Command, and Group-*Captain A E Pantor, principal medical officer for the* Middle East, have been granted the rank of acting air-commodore

---

Dr. Emilio Mira, formerly professor of psychiatry in the University of Barcelona, has been appointed director of *mental hygiene* for the Cuban government.

". . . Never since 1600 has the world seen such a reversion toward authoritarianism, superstition and every irrational and unscientific brand of emotionalism as at the *present* moment. And wherever emotionalism determines conduct, there you have necessarily the *law* of the jungle. Let the sentimentalist note well that statement In it I have given the correct definition of a reactionary, namely, the man who has turned *his face* toward the method of the jungle, *toward brute* government instead of ballot government, toward authoritarianism instead of toward freedom. On the right and the left are found all the reactionaries, only in the centre *is found* the real progressive Why? Because *there, as* Walter *Lippmann has so* well said, are found all those who are trying to replace the method of the brute by the method of a being supposed to be endowed with a mind—that is, by analysis, by persuasion, by adjudication, by compromise by evolution, by peaceful change"—R A MILLIKAN in "Cosmic Rays," Cambridge, 1939

Medical Diary

Week beginning November 27

ROYAL SOCIETY OF MEDICINE, 1 WIMPOLE STREET, W 1

MONDAY

Odontology 2.30 P.M., Prof A Fleming Antiseptics and Chemotherapy Dr A J Cokkinis Sulphonamide Chemotherapy and its Effects on Gingivitis and Pyorrhœa

FRIDAY

Otology 10.30 A.M., Dr G B Brand Mr Walter Howarth and Mr G Bateman The Transmeatal Approach to the Mastoid Mr John Gerrie will show a cinematograph film

Laryngology 1.30 P.M. Cases 2.15 P.M., discussion on Sulphanilamide and Orbital Complications of Sinus Disease

Anæsthetics, 2.30 P.M., Dr J F Taylor Status Lymphaticus

BRITISH POSTGRADUATE MEDICAL SCHOOL

DAILY

10 A.M.–4 P.M. Medical clinics surgical clinics and operations, obstetrical and gynæcological clinics and operations
1.30–2 P.M. Post mortem demonstration

MONDAY

Beginning of course for final F R C S

TUESDAY

Lord Horder Ward clinic

WEDNESDAY

11.30 A.M. Clinical pathological conference (medical) 2.30 P.M. Clinical pathological conference (surgical)

THURSDAY

2–4 P.M. Dr Duncan White Radiological conference

FRIDAY

2 P.M., Clinical pathological conference (gynæcological)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, LINCOLN'S INN FIELDS, W C 2

THURSDAY—3 P.M. Sir Walter Langdon Brown The Apposable Thumb (Thomas Vicary lecture)

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION 1 WIMPOLE STREET W 1

MONDAY AND WEDNESDAY—4.30 P.M. (Brompton Hospital, S W 3) M R C P course in chest diseases

Appointments

BRADSHAW J S M B Lpool D I H county medical officer for West Sussex
CRAW, JOHN M B Glasg F R F P S G consultant for silicosis and industrial pulmonary diseases to the Lancashire and Cheshire Coal Association
ROE C G M D Camb F R C S resident surgical officer at the Royal Infirmary Halifax
PRICE MORRIS M R C S second resident assistant medical officer at the Berks and Bucks Joint Sanatorium Peppard Common
WHEELER F F F R C S E surgical registrar at the Royal Berkshire Hospital Reading
Examining Surgeons under the Factories Act 1937 Dr R G R BURROWS (Melling district, Lancashire), Dr D B DAVIES (Kidwelly district, Carmarthenshire), Dr F H E BECKETT (Manningtree district, Essex) and Dr DOUGLAS CRAIG (Stanford le Hope district Essex)

Vacancies

Belfast Mothers Clinic 103 The Mount—Part time M O
Birmingham Selly Oak Hosp—Jun M O s at rate of £200
Cardiff King Edward VII Welsh National Memorial Assn—Asst res M O for North Wales Sanatorium £400
Chesterfield Chesterfield and North Derbyshire Royal Hosp—H S to ophth and ear nose and throat depts and H P, each at rate of £150
Colonial Medical Service—Medical officers
Dreadnought Seamen s Hosp Greenwich S E 10—H P s and H S s each £110
Hosp for Sick Children Great Ormond Street, W C 1—Two H P s and two H S s each at rate of £100
Huddersfield County Borough—Asst School M O £500
London County Council Infectious Hosps—Temp asst M O s (Class I and Class II) £350 and £250 respectively
Manchester Booth Hall Hosp for Children—Res surg O £100
Manchester Saint Mary's Hosps Whitworth Park—Hon surgeon for children
Manchester, Royal Children's Hosp Pendlebury—Res H S at rate of £100
Merton and Morden Urban District Council—M O H £900
Middlesex County Council Central Middlesex County Hospital Willesden N W 10—Med supt £1200
Newcastle upon Tyne King s College—Demonstrator in pathology, &c £300
New Zealand Cook Hosp Gisborne—Radiologist £1000
Norwich, Norfolk and Norwich Hosp—H S to special depts £150
Oxford University Nuffield professorship of orthopædic surgery £1500 and £500 as clinical director of Wingfield Morris Hosp
Plymouth, Prince of Wales s Hosp Greenbank Road—Res surg O, at rate of £225 Also sen H S for Devonport Section at rate of £130
Queen Charlotte s Maternity Hosp Marylebone Road N W 1—Asst res M O, at rate of £100 Also res anæsthetist and dist res M O £100
Reading Royal Berkshire Hosp—Res anæsthetist, at rate of £250
Ryde Royal Isle of Wight County Hospital—H S £110
Samaritan Free Hosp for Women Marylebone Road, N W 1—H S at rate of £100
Staffordshire County Council—Deputy county M O H, £850
Stoke on Trent, North Staffordshire Royal Infirmary—Res surg O, £350
Swanley Kent, Hosp Convalescent Home, Parkwood—Res M O, at rate of £200
Wolverhampton Royal Hosp—Surg reg £350
Medical Referee vacancy under Workmen s Compensation Act, 1925, for the county-court district of West Hartlepool (circuit No 3) Applications to the private secretary, Home Office, Whitehall London S W 1 before Dec 3

Births, Marriages and Deaths

BIRTHS

BURGESS—On Nov 14 at Clifton Bristol the wife of Dr Norman Burgess—a daughter
GARDHAM—On Nov 16, at Hindhead the wife of Mr A J Gardham F R C S—a daughter
LAWRIE—On Nov 17 at Bareilly India, the wife of Major William Lawrie I M S—a son
MONRO—On Nov 17 in Singapore the wife of Mr J K Monro M Chir—a son
NICOL—On Nov 13 at Wimbledon, the wife of Dr C Grant Nicol—a daughter
WINFIELD—On Nov 17 at Cambridge the wife of Flight Lieutenant R H Winfield M B—a daughter

MARRIAGES

CHAPMAN WALKER—BELL—On Nov 11 at Humshaugh, Northumberland Peter John Fielding Chapman Walker, to Monica Featherston Bell, M B
COLDREY—BINNIE—On Nov 17 at Crieff Perthshire Richard Plant Coldrey, M B, R N V R of Hove to Rosalind Mary Binnie
DOBIE—PATTINSON—On Nov 15 at Belsize Park London, John Morrell Dobie M B of Chester to Marjorie Dean Pattinson of Hampstead
FERGUSON—MACKNESS—On Nov 13 at Mapperley, Surgeon Lieutenant Robert Lewis Ferguson M B R N V R, of Edinburgh to Kathleen Iris Mackness of Nottingham
HOPKIRK—BAKER BEALL—On Sept 16 at the Cathedral of the Highlands Nairobi Kenya, William Gerald Stewart Hopkirk, M B to Joan Ann Baker Beall
ROSS—MACDONALD—On Nov 11, in Bombay Harvey Ross M B to Alison Macdonald
SEVILLE—COCKS—On Nov 11 at Brighton Charles Heywood Seville, M B, of Oulton Leeds, to Stella Mary Cocks, of Brighton
SLEE—DUDLEY CORBETT—On Nov 18 at Oxford Mark A Slee B M of West Kensington to Joan Felicity Dudley Corbett of Hampstead

DEATHS

ARNOLD—On Nov 18, at Bournemouth Gilbert James Arnold, F R C S
ATKINSON—On Nov 18 in London Frederick Richard Brooks Atkinson M D Edin
CADDICK—On Nov 10, at Nakuru Kenya Major Charles John Caddick, T D M D, F R C S E aged 65
DUNN—On Sunday Nov 19 at [illegible] Naughton Dunn M B Aberd LL D of Harborne Birmingham lecturer on orthopædic surgery in the University of Birmingham, aged 54
JONES—On Nov 16, at the Middlesex Hospital George Horatio Jones M R C S, of Deddington Oxon aged 68
PROUT—On Nov 15 at Lingfield Surrey Lieut Colonel Sir William Thomas Prout K C M G, O B E M B Edin, aged 77
SHEPHERD—On Nov 14 at Potters Bar John Ingram Shepherd M C M D Edin of Cuffley Herts
SMITH—On Nov 17 at Torquay Arthur Lionel Hall Smith M B Camb M R C P of Wimpole Street London
TURNER—On Nov 19 Frederick Senior Turner M R C S of Horley Surrey

I spent three months in learning to measure the amounts of oxygen and carbon dioxide in a cubic centimetre of blood As a hospital biochemist I have performed estimations of blood urea to decide whether or not it was safe to operate in cases of prostate disease, and many other routine analyses I have certainly produced and measured greater changes in my own blood than anyone else has ever done And it is about eighteen years since I first learned how to determine the group to which the blood of an individual belongs So perhaps my knowledge of human blood from a scientific point of view is equal to that of Herr Hitler from the emotional angle —Prof J B S HALDANE, F R S, New Statesman Nov 4, 1939

NOTES, COMMENTS AND ABSTRACTS

WHITE MAGIC, PSYCHOTHERAPY, AND STIGMATA

STARTING from a boyish interest in conjuring tricks, Prof. A. Bessemans[1] of Ghent passed through phases in which he studied divination, fakirs, spiritualism (exposing several mediums), and hypnotism. During the last war he not only cured neuroses by suggestion but also produced catalepsy, paresis, and local hyperæsthesia and anæsthesia. He rendered subjects temporarily blind to colours shown not only as simple tints, but also blended with other colours. In his most amenable subject he even caused the appearance of erythema, papules, and vesicles. Encouraged by this success, Bessemans tried to produce stigmata, but never saw any sign of oozing or even of hyperæmia. He investigated also the case of Rosalie Put of Limbourg on whose hands, feet, head, and left breast large clots of blood appeared every Friday between 2 and 9 A.M. for many years until her death in 1919. Bessemans's suspicions were roused by the following facts. Two of the people who were most willing to help him were a bogus priest, who later fell into the clutches of the police, and a layman highly recommended to him by an abbé subsequently excommunicated for faking a bleeding "sacred heart" in his church. No credible witness ever observed the onset of Rosalie's hæmorrhage. And the events happened punctually at certain hours. Thus at 9 A.M. Rosalie apparently went into a trance, with slow and shallow respiration, slow pulse, apparent insensibility to pain and heat, closed eyelids, immobility and rigidity, and a pale cold skin with local mottling due to diminished circulation consequent on restricted respiration. Bessemans suggests that such mottling may be related to the stigmata exhibited by other persons. At 11 A.M. Rosalie used to roll out of bed on to the floor without hurting herself and then got up and posed in attitudes reminiscent of the stations of the cross. At 1 P.M. she was put back into bed by her attendants, and the blood-clots were washed off. Bessemans noted that the skin under the clots was intact.

UNWANTED CLOTHES AND LINEN

FOR many people this war has meant a flitting, with all its accompanying annoyances of storing furniture and packing away clothes and household goods. Usually the change has been to a smaller house or to a share in a house, and few of us today have as many drawers and cupboards as we had. It is true that clothes, other than mackintosh and overcoat, have lost much of their significance, but the process of weeding out is always painful. It may help our readers to be ruthless if they know that what they discard may be used to help doctors' families or dependants who have been left in financial straits The clothes room of the Ladies Guild of the Royal Medical Benevolent Fund sends out each year between 500 and 600 parcels to beneficiaries of the fund, and they are anxious that it should be known that they are carrying on this work. Anyone who sends unwanted clothing, curtains, blankets, or linen to the Ladies Guild at B.M.A. House, Tavistock Square, London, W.C.1 can be sure that they will go where there is real need.

GRASS DRYING

FODDER conservation by grass drying is just now attracting considerable attention, and Mr. E. J. Roberts's report[2] issued by the Agricultural Research Council is therefore timely. Experiments show that dried grass of good quality is a first-rate food for all farm stock. It is claimed to be superior to grass conserved by other methods in nutritive value, and in addition, contains a high percentage of the original carotene, chlorophyll, vitamins A, B, C, E, and G, of the grass. High-grade dried grass may have a vitamin A potency equal to that of cod-liver oil, and is extremely suitable for inclusion in the rations of indoor stock, as it loses its potency in meal mixtures much less rapidly than does cod-liver oil.

When dried grass is fed to dairy cows in winter, it maintains the vitamin A potency of the milk at a similar level to summer milk. The interesting fact emerges, however, that milk of a high carotene content when fed to children and rats showed no advantage over milk low in carotene. The effect on the carotene content of grass of such factors as manuring, season of year, age and species of grass, are discussed, and the importance of efficient storage of dried grass, if the carotene content is to be preserved, is fully realised. The possibility of conserving other crops such as potatoes and root crops by this method may soon become practical, and its development may increase the popularity of the drier on the farm by making its use less of a seasonal thing.

CENTENARY OF ACTA MEDICA SCANDINAVICA

AT a meeting which celebrated the publication of the hundredth volume of this famous medical journal Professor Santesson recounted the story of the early struggles of its originator Professor Axel Key to ensure the continued life of the periodical, which he regarded as an essential factor for the promotion of Northern scientific medicine. That a journal of such international repute should have arisen with so small a band of supporters, and such scanty financial resources, is an interesting story. We offer our congratulations to *Acta* on its centenary volume and we admire the courage and perseverance which have gone to the attainment.

SUPERSTITIONS

IN his "Superstition and Society" (The Hogarth Press 1939. Pp. 163. *4s. 6d.*) based on six lectures delivered in 1937 at the Institute of Psycho Analysis, the third of the epitomes being published to put forward the institute's views, Mr. Money Kyrle deals with the relations between psycho-analysis and anthropology. His object seems to be to find in primitive mythology, totemism, and magic a parallel with the repressions of civilised people as disclosed by the psycho-analytic technique. A treatise of this nature must be primarily intended for those who have a knowledge of the Freudian theories, and will be welcomed by those whose psychological beliefs agree with the author's.

THE ART OF CRITICISM

NO doctor who wants to express his ideas in writing so that other men can understand them will find a better guide than Prof. Lane Cooper, who occupies the chair of the English language and literature in Cornell University In his "Aristotelian Papers" (Humphrey Milford, Oxford University Press 1939. Pp. 237 *14s 6d*), a collection of reprinted reviews and articles on Aristotelian criticism, certain English poets, and verbal felicities and infelicities, every point is set down with accuracy and precision; every scrap of relevant information is marshalled in orderly sequence and illuminated with ingenious parallels; and the final conclusions therefore seem inevitable. His book is a model of constructive criticism and of psychological and deductive reasoning, but above all it is an example of the art of an accomplished philosopher and finished literary craftsman

---

NATIONAL UNIVERSITY OF IRELAND.—Prof. Thomas Walsh has been coöpted a member of the senate.

---

[1] Bessemans, A., *Bruxelles-méd* Nov. 5, 1939, p 4

[2] Fodder Conservation, with special reference to Grass Drying E J Roberts M.A, M Sc, *Spec Rep. Ser Agric. Res Coun, Lond* No. 5 London: H M. Stationery Office. Pp 137 2s.

ADDRESSES AND ORIGINAL ARTICLES

VITAMIN-K LACK IN NORMAL AND SICK INFANTS

By H Dam, F Tage-Hansen
and P Plum

(*From the University Biochemical Institute and the Rigshospital, Copenhagen*)

This work began when we saw a boy aged 26 days with jaundice, a hæmorrhagic state and anæmia With the possibility of vitamin K lack in mind we examined the clotting power of the blood by a method which indicates specially the blood prothrombin A great reduction of prothrombin was found and the child was therefore treated with vitamin K The hæmorrhagic state disappeared within 48 hours of giving the vitamin Later we examined the prothrombin in infants suffering from similar states icterus gravis hæmorrhagic state and anæmia, erythroblastosis and hydrops congenitus) In all a *pronounced reduction of prothrombin was found* These cases were compared with a number of normal infants with and without "physiological" icterus neonatorum

TECHNIQUE

The blood coagulation was estimated by the method of Dam and Glavind (1938) Exactly 2 ml of venous blood is taken through a cannula and placed in a centrifuge tube containing 0 1 ml of heparin solution (prepared by *dissolving* 3 *mg* of 'Leo" heparin in 2 ml of Ringer's solution) After mixing and centrifuging, the clotting power is determined by use of an extract of human brain The concentration K of the brain extract which just coagulates the plasma in 3 minutes, when 1 drop of the extract is added to 4 drops of plasma is determined A corresponding determination is made on normal *plasma* (K_n) The quotient R (or K/K_n) is a measure of the alteration in coagulation while the reciprocal value 1/R (or K_n/K) *is a measure of the* ability to coagulate with tissue extract When the fibrinogen content is not grossly reduced and certain other factors are constant, the ability to coagulate with tissue extract depends only on the prothrombin content and is approximately proportional to the concentration of prothrombin In normal plasma R is 1 If R is 100 the prothrombin content is only about 1 per cent *of the normal* In the following description coagulation is measured in R value In some cases especially where the *plasma did not* coagulate at all, the fibrinogen content was also determined by Gram s method (1921) The blood was taken from a temporal vein

Vitamin K concentrations were prepared by the method described by Dam Geiger et al (1939) As we had only a limited amount of pure vitamin K available we did not use the pure vitamin itself but a concentrate containing about 10 per cent of pure vitamin K_1

CASE HISTORIES

Case 1 —Boy aged 26 days, admitted to the Rigshospital, children's department on March 18, 1939 Birth weight 4 kg, breast-fed very jaundiced continuously since birth; did not look really ill until 3-4 days before admission; child then bled from a small scratch near the nose for about 12 hours, on day before admission vomited some fresh blood

On examination Child looked ill, prostrated, very jaundiced, and anæmic; petechiæ on oral mucosa and two ecchymoses on the back, liver, spleen and lymph glands not enlarged, no pyrexia stools greenish-yellow, urine dark, sugar and bile pigments present

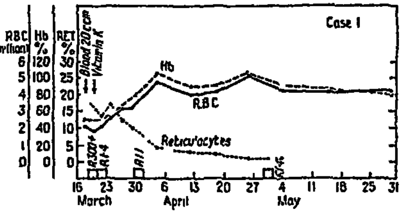
Blood-picture Hb 50 per cent, R B C s 2 07 million, W B C s 9700 One erythroblast to every 100 leucocytes Pronounced anisocytosis poikilocytosis and polychromasia Platelet-count normal Fragility of red cells hæmolysis begins with 0 42 per cent NaCl, and is complete with 0 30 per cent

Prothrombin determination

March 20 R more than 300, March 22, R = 1 4, March 31, R = 1 1; May 1, R = 1 4,

Treatment and progress A few hours after admission 20 c cm of the mother s blood was put into one of the child's temporal veins The next three days there were repeated small muscle-spasms in the face and limbs Two days after the transfusion the number of R B C.s had fallen from 2 07 million to 1 83 million As, despite the transfusion, the amount of prothrombin was found to be greatly reduced, vitamin K was given Through a stomach tube 6 mg concentrate was administered (10 000 units in an emulsion with 100 mg of the sodium salt of des-oxycholic acid), and 10,000 units vitamin K in 0 5 c cm of oil was given intramuscularly as well On March 22, 11 hours after the K-vitamin administration, the amount of prothrombin was normal (R = 1 1) and it remained normal The general condition and blood-picture quickly improved (fig 1) When discharged on May 5 the patient was still a little jaundiced, but otherwise quite well On two later examinations his condition was satisfactory and the jaundice had completely disappeared

FIG 1



Diagnosis Icterus gravis with hæmorrhagic state and anæmia

Case 2 —Boy aged 1 day, admitted to Rigshospital on May 25, 1939, died 15 minutes after admission The child is the fourthborn of a mother, who has for many years taken thyroidin, the first was stillborn, the third an abortion, while the second is now eleven years old and healthy, father in good health

Born at full term by natural delivery Birth weight 3 7 kg, neonatal asphyxia, recovered after artificial respiration for half an hour, skin at birth already patchy a few hours before admission there was a sudden large hæmorrhage from the rectum, after which the child lost consciousness

On examination Child was moribund and died 15 minutes later, skin was jaundiced and covered everywhere with hæmorrhages of various sizes Eighteen minutes after death blood was taken from the heart It had not coagulated and did not do so for several hours It was obviously anæmic and the plasma was very icteric

Prothrombin determination R more than 300 (i.e. prothrombin extremely reduced) Nucleated R B C.s 16 per cent

At autopsy the organs were found to be anæmic and icteric with ecchymoses everywhere; the small

NOTES, COMMENTS AND ABSTRACTS

WHITE MAGIC, PSYCHOTHERAPY, AND STIGMATA

STARTING from a boyish interest in conjuring tricks, Prof. A Bessemans[1] of Ghent passed through phases in which he studied divination, fakirs, spiritualism (exposing several mediums), and hypnotism. During the last war he not only cured neuroses by suggestion but also produced catalepsy, paresis, and local hyperæsthesia and anæsthesia. He rendered subjects temporarily blind to colours shown not only as simple tints, but also blended with other colours. In his most amenable subject he even caused the appearance of erythema, papules, and vesicles. Encouraged by this success, Bessemans tried to produce stigmata, but never saw any sign of oozing or even of hyperæmia. He investigated also the case of Rosalie Put of Limbourg on whose hands, feet, head, and left breast large clots of blood appeared every Friday between 2 and 9 A.M. for many years until her death in 1919. Bessemans's suspicions were roused by the following facts Two of the people who were most willing to help him were a bogus priest, who later fell into the clutches of the police, and a layman highly recommended to him by an abbé subsequently excommunicated for faking a bleeding "sacred heart" in his church. No credible witness ever observed the onset of Rosalie's hæmorrhage. And the events happened punctually at certain hours. Thus at 9 A M Rosalie apparently went into a trance, with slow and shallow respiration, slow pulse, apparent insensibility to pain and heat, closed eyelids, immobility and rigidity, and a pale cold skin with local mottling due to diminished circulation consequent on restricted respiration Bessemans suggests that such mottling may be related to the stigmata exhibited by other persons. At 11 A.M. Rosalie used to roll out of bed on to the floor without hurting herself and then got up and posed in attitudes reminiscent of the stations of the cross. At 1 P.M. she was put back into bed by her attendants, and the blood-clots were washed off. Bessemans noted that the skin under the clots was intact.

UNWANTED CLOTHES AND LINEN

FOR many people this war has meant a flitting, with all its accompanying annoyances of storing furniture and packing away clothes and household goods. Usually the change has been to a smaller house or to a share in a house, and few of us today have as many drawers and cupboards as we had. It is true that clothes, other than mackintosh and overcoat, have lost much of their significance, but the process of weeding out is always painful. It may help our readers to be ruthless if they know that what they discard may be used to help doctors' families or dependants who have been left in financial straits The clothes room of the Ladies Guild of the Royal Medical Benevolent Fund sends out each year between 500 and 600 parcels to beneficiaries of the fund, and they are anxious that it should be known that they are carrying on this work. Anyone who sends unwanted clothing, curtains, blankets, or linen to the Ladies Guild at B M A. House, Tavistock Square, London, W C.1 can be sure that they will go where there is real need.

GRASS DRYING

FODDER conservation by grass drying is just now attracting considerable attention, and Mr. E. J. Roberts's report[2] issued by the Agricultural Research Council is therefore timely. Experiments show that dried grass of good quality is a first-rate food for all farm stock. It is claimed to be superior to grass conserved by other methods in nutritive value, and in addition, contains a high percentage of the original carotene, chlorophyll, vitamins A, B, C, E, and G, of the grass. High-grade dried grass may have a vitamin A potency equal to that of cod-liver oil, and is extremely suitable for inclusion in the rations of indoor stock, as it loses its potency in meal mixtures much less rapidly than does cod-liver oil.

When dried grass is fed to dairy cows in winter, it maintains the vitamin A potency of the milk at a similar level to summer milk. The interesting fact emerges, however, that milk of a high carotene content when fed to children and rats showed no advantage over milk low in carotene. The effect on the carotene content of grass of such factors as manuring, season of year, age and species of grass, are discussed, and the importance of efficient storage of dried grass, if the carotene content is to be preserved, is fully realised. The possibility of conserving other crops such as potatoes and root crops by this method may soon become practical, and its development may increase the popularity of the drier on the farm by making its use less of a seasonal thing.

CENTENARY OF ACTA MEDICA SCANDINAVICA

AT a meeting which celebrated the publication of the hundredth volume of this famous medical journal Professor Santesson recounted the story of the early struggles of its originator Professor Axel Key to ensure the continued life of the periodical, which he regarded as an essential factor for the promotion of Northern scientific medicine. That a journal of such international repute should have arisen with so small a band of supporters, and such scanty financial resources, is an interesting story. We offer our congratulations to *Acta* on its centenary volume and we admire the courage and perseverance which have gone to the attainment.

SUPERSTITIONS

IN his "Superstition and Society" (The Hogarth Press. 1939. Pp. 163 4s. 6d) based on six lectures delivered in 1937 at the Institute of Psycho-Analysis, the third of the epitomes being published to put forward the institute's views, Mr. Money-Kyrle deals with the relations between psychoanalysis and anthropology. His object seems to be to find in primitive mythology, totemism, and magic a parallel with the repressions of civilised people as disclosed by the psycho-analytic technique. A treatise of this nature must be primarily intended for those who have a knowledge of the Freudian theories, and will be welcomed by those whose psychological beliefs agree with the author's

THE ART OF CRITICISM

NO doctor who wants to express his ideas in writing so that other men can understand them will find a better guide than Prof. Lane Cooper, who occupies the chair of the English language and literature in Cornell University. In his "Aristotelian Papers" (Humphrey Milford, Oxford University Press 1939 Pp. 237. 14s. 6d.), a collection of reprinted reviews and articles on Aristotelian criticism, certain English poets, and verbal felicities and infelicities, every point is set down with accuracy and precision; every scrap of relevant information is marshalled in orderly sequence and illuminated with ingenious parallels; and the final conclusions therefore seem inevitable. His book is a model of constructive criticism and of psychological and deductive reasoning, but above all it is an example of the art of an accomplished philosopher and finished literary craftsman.

NATIONAL UNIVERSITY OF IRELAND.—Prof. Thomas Walsh has been coöpted a member of the senate.

---

[1] Bessemans A *Bruxelles-méd* Nov 5, 1939 p 4

[2] Fodder Conservation with special reference to Grass Drying E J Roberts M A M Sc, *Spec Rep Ser Agric Res Coun, Lond* No 5 London H M Stationery Office Pp 137 2s.

ADDRESSES AND ORIGINAL ARTICLES

VITAMIN-K LACK IN NORMAL AND SICK INFANTS

By H Dam, E Tage Hansen
and P Plum

(From the University Biochemical Institute and the Rigshospital, Copenhagen)

This work began when we saw a boy aged 20 days with jaundice, a hæmorrhagic state and anæmia With the possibility of vitamin K lack in mind we examined the clotting power of the blood by a method which indicates specially the blood prothrombin A great reduction of prothrombin was found and the child was therefore treated with vitamin K The hæmorrhagic state disappeared within 48 hours of giving the vitamin Later we examined the prothrombin in infants suffering from similar states icterus gravis, hæmorrhagic state and anæmia, erythroblastosis and hydrops congenitus) In all a pronounced reduction of prothrombin was found These cases were compared with a number of normal infants with and without "physiological" icterus neonatorum

TECHNIQUE

The blood coagulation was estimated by the method of Dam and Glavind (1938) Exactly 2 ml of venous blood is taken through a cannula and placed in a centrifuge tube containing 0 1 ml of heparin solution (prepared by dissolving 3 mg of "Leo" heparin in 2 ml of Ringer's solution) After mixing and centrifuging, the clotting power is determined by use of an extract of human brain The concentration K of the brain extract which just coagulates the plasma in 3 minutes when 1 drop of the extract is added to 4 drops of plasma is determined A corresponding determination is made on normal plasma (K_n) The quotient R (or K/K_n) is a measure of the alteration in coagulation, while the reciprocal value 1/R (or K_n/K) is a measure of the ability to coagulate with tissue extract When the fibrinogen content is not grossly reduced and certain other factors are constant, the ability to coagulate with tissue extract depends only on the prothrombin content and is approximately proportional to the concentration of prothrombin In normal plasma R is 1 If R is 100, the prothrombin content is only about 1 per cent of the normal In the following description coagulation is measured in R value In some cases especially where the plasma did not coagulate at all the fibrinogen content was also determined by Gram's method (1921) The blood was taken from a temporal vein

Vitamin-K concentrations were prepared by the method described by *Dam, Geiger, et al* (1939) As we had only a limited amount of pure vitamin K available, we did not use the pure vitamin itself but a concentrate containing about 10 per cent of pure vitamin K_1

CASE HISTORIES

Case 1 —Boy aged 20 days, admitted to the Rigshospital, children's department, on March 18, 1939 Birth weight 4 kg, breast fed very jaundiced continuously since birth, did not look really ill until 3–4 days before admission; child then bled from a small scratch near the nose for about 12 hours, on day before admission vomited some fresh blood

On examination Child looked ill, prostrated, very jaundiced, and anæmic, petechiæ on oral mucosa and two ecchymoses on the back, liver, spleen and lymph-glands not enlarged, no pyrexia, stools greenish-yellow, urine dark, sugar and bile pigments present

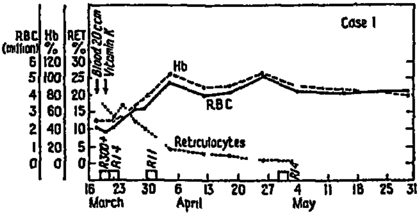
Blood-picture Hb 50 per cent, R B C.s 2 07 million, W.B C.s 9700 One erythroblast to every 100 leucocytes Pronounced anisocytosis poikilocytosis and polychromasia Platelet count normal Fragility of red cells hæmolysis begins with 0 42 per cent NaCl, and is complete with 0 30 per cent

Prothrombin determination

March 20, R more than 300, March 22, R = 1 1, March 31, R = 1 1, May 1, R = 1 4,

Treatment and progress A few hours after admission 20 c cm of the mother's blood was put into one of the child's temporal veins The next three days there were repeated small muscle-spasms in the face and limbs Two days after the transfusion the number of R B C.s had fallen from 2 07 million to 1 83 million As, despite the transfusion, the amount of prothrombin was found to be greatly reduced, vitamin K was given Through a stomach-tube 6 mg concentrate was administered (10,000 units in an emulsion with 100 mg of the sodium salt of des-oxycholic acid), and 10,000 units vitamin K in 0 5 c cm of oil was given intramuscularly as well On March 22, 11 hours after the K-vitamin administration, the amount of prothrombin was normal (R = 1 1) and it remained normal The general condition and blood-picture quickly improved (fig 1) When discharged on May 5 the patient was still a little jaundiced, but otherwise quite well On two later examinations his condition was satisfactory and the jaundice had completely disappeared

FIG 1



Diagnosis Icterus gravis with hæmorrhagic state and anæmia

Case 2 —Boy aged 1 day, admitted to Rigshospital on May 25, 1939; died 15 minutes after admission The child is the fourthborn of a mother, who has for many years taken thyroidin, the first was stillborn, the third an abortion, while the second is now eleven years old and healthy, father in good health

Born at full term by natural delivery Birthweight 3 7 kg, neonatal asphyxia, recovered after artificial respiration for half an hour, skin at birth already patchy, a few hours before admission there was a sudden large hæmorrhage from the rectum, after which the child lost consciousness

On examination Child was moribund and died 45 minutes later, skin was jaundiced and covered everywhere with hæmorrhages of various sizes Eighteen minutes after death blood was taken from the heart It had not coagulated and did not do so for several hours It was obviously anæmic and the plasma was very icteric

Prothrombin determination R more than 300 (i.e. prothrombin extremely reduced) Nucleated R B C.s 10 per cent

At autopsy the organs were found to be anæmic and icteric with ecchymoses everywhere, the small intestine was hæmorrhagic throughout its whole length, while the stomach and large intestine showed no macroscopic changes. Microscopic examination showed great erythropoietic activity of the liver with numerous big and small foci of erythroblasts.

Diagnosis: Icterus gravis with hæmorrhagic state and anæmia

CASE 3.—Girl aged 13 days; admitted to Rigshospital, June 23, 1939 Parents in good health. Child is seventhborn; first child a healthy girl; second a full-term girl, jaundiced at birth, died when 8 days old of jaundice and intestinal poisoning; third a full-term boy, stillborn with hydrocephalus; fourth a full-term boy, stillborn and macerated; fifth a full-term girl, stillborn; sixth a boy, born 3–4 weeks prematurely, jaundiced at birth, died half an hour after birth. The patient had a twin-brother (case 4).

Born 2–3 weeks prematurely Birth-weight 3050 g. Obviously jaundiced at birth. On June 19 Hb 40 per cent. and 25 c.cm. of the mother's blood was given into the sagittal sinus. On the 20th 10 c.cm of blood was given into the sagittal sinus

On examination (June 23): Very pale, only a little jaundiced; subconjunctival hæmorrhage in right eye, otherwise no symptoms of hæmorrhagic state; general condition fairly good; no other abnormal findings.

Blood-picture

Date	June					July		
	19	22	24	26	28	1	5	8
Hb per cent .	40	38	26	—	24	25	45	41
R B C s (million)	—	—	—	1 01	—	—	—	1 68
Reticulocytes (per cent)	—	—	—	0 3	1	1	—	5 6

Date in July	11	13	14	15	18	22
Hb (per cent)	41	42	48	—	18	52
R B C s (million)	1 77	1 75	—	1 96	2 33	—
Reticulocytes (per cent) ..	3 8	9 0	12 0	22 0	28 3	18 0

Leucocytes, June 20: 15,680; July 14: 34,250.

Prothrombin determination, June 16: R over 300. June 27, blood was noticed to coagulate quickly in the pipette.

Icterus index (Meulengracht), June 16. 50.

Treatment and progress: The general condition and the blood-picture improved slowly. On July 10 vitamin K (1000 units) was given intravenously. When one compares the patient's blood-regeneration with that of his twin-brother, who was not treated with vitamin K, it appears as though the improvement was independent of the treatment.

Diagnosis. Anæmia neonatorum with icterus neonatorum.

CASE 4.—Boy aged 13 days Twin-brother of case 3; admitted to the Rigshospital on June 23, 1939; died July 20. Birth-weight 2100 g. Very jaundiced at birth. As the child was pale and weak, and the Hb. percentage on June 19 was 20, 25 c.cm. of the mother's blood was given into the sagittal sinus. On June 20 10 c.cm. blood was given from another donor.

On examination (June 23): Small, thin, very anæmic, and only slightly jaundiced. No symptoms of hæmorrhagic diathesis. The liver was just palpable. The spleen was not palpable.

Leucocytes, June 26: 9100; July 11: 16,200; erythroblasts, 12 per cent

Prothrombin determination, June 16 R more than 300 June 21 R = 0 7

Icterus index, June 16. 60

Treatment and progress: As the Hb percentage was falling, despite the two transfusions on June 19 and June 20, blood was again given on July 8, 40 c.cm. into the sagittal sinus. From June 26 to July 2 "Hepsol" (a liver preparation) was given daily, 2 c.cm. intramuscularly. The patient became worse and despite another transfusion on July 20 of 80 c.cm. the child died.

Blood-picture

Date	June						July		
	19	22	24	26	28	29	1	4	7
Hb (per cent)	20	42	38	—	32	36	31	34	39
R B C s (million)	—	—	—	1 79	—	—	—	—	—
Reticulocytes (per cent) .. .	—	—	—	4	3	0 2	—	—	0 2

Date in July	8	9	10	11	13	15	16	18
Hb (per cent) .	30	26	26	28	35	38	—	35
R B C s (million) .	1 38	0 93	—	1 22	1 31	—	1 62	1 77
Reticulocytes (per cent) .	0 4	5	7 3	5	7·5	23	20	19

Diagnosis: Anæmia neonatorum with icterus neonatorum.

CASE 5.—Girl aged 9 days; admitted to Rigshospital on April 27, 1939; discharged May 18 Father in good health; mother had pyelitis during pregnancy; one previous child a girl, was born by artificial induction, 2 months prematurely, owing to the mother having jaundice and pyelitis; this child died shortly after birth.

Born naturally at full term Weight at 9 days 3300 g. Neonatal asphyxia relieved by artificial vigorous respiration; extreme jaundice which later diminished, and at the same time she became very pale, weak and apathetic; motions fairly dark.

On examination: General condition fair; very anæmic, slightly jaundiced; on the abdomen and *nates some small ecchymoses: liver down to umbilicus;* spleen 2 c.cm. below ribs.

Blood-picture

Date	Apr	May							
	28	1	3	4	6	8	9	12	16
Hb (per cent.) .	43	41	—	—	53	65	—	65	62
R B C s (million)	1 69	2 25	2 60	—	3 20	3 38	—	3 60	3 30
Reticulocytes (per cent.) .	4	13	6	11	6	7	5	5	—

April 28 Erythroblasts, 2 per 100 leucocytes

Prothrombin determination, May 1: R = 5 7.

Icterus index, May 1: 7.

Treatment and progress: The general condition and the blood-picture improved quickly without treatment

Diagnosis: Icterus neonatorum with hæmorrhagic state and anæmia.

CASE 6.—Boy aged 14 days; admitted to Rigshospital on July 14, 1939. No similar cases in the family; mother in good health during pregnancy until 14 days before delivery, when œdema of the legs developed and gradually reached the abdomen. The urine contained albumin, erythrocytes, leucocytes and cylinders. After delivery the œdema quickly disappeared and she was discharged 14 days after delivery.

Born by natural delivery at full term; birth-weight 3550 g Neonatal asphyxia and enormous œdema of the lower extremities and the lower part of the abdomen; abdomen very distended. During the first 24 hours the child became cyanotic and dyspnœic several times The œdema increased and spread to the thorax and head. During the following days the condition continued poor

On examination (July 14) weak child with enormous universal œdema, skin jaundiced and cyanotic when the child cried An elongated ecchymosis, above and below right eye, and a little fresh blood at the umbilicus Rales at the bases of the lungs, liver and spleen not enlarged Microadenitis in the neck and axillæ, but not in the inguinal regions

Blood picture

Date	July	
	8	16
Hb (per cent)	140	135
R.B.C.s (million)	4.30	4.81
Reticulocytes (per cent.)	1	1

Leucocytes, July 8th 10,700

Prothrombin determination, July 8, before treatment: R more than 200 4 hours after the intravenous administration of 4000 units vitamin K, R = 127 July 10 (41 hours after the administration) R = 4–5 July 14 R = 2

Icterus index, July 8 45, July 14 45

Treatment and progress, July 8 vitamin K was given, as mentioned above, after which blood-coagulation became normal On July 18 the œdema had almost completely disappeared and the general condition was much improved The child is still under treatment

Diagnosis Congenital hydrops with icterus

CASE 7.—Boy 3 days old Born in the maternity department of the Rigshospital on June 19, 1939 Discharged June 28 Mother in good health during her pregnancy, apart from a little œdema of the legs Born naturally at full term, birth-weight 3000 g When the child was 3 days old he had several coffee-ground vomits The motions were dark and showed a strongly positive benzidine reaction

On examination Apart from moderate jaundice there were no abnormal findings June 22, Hb 120 per cent Blood-plasma moderately icteric

Prothrombin determination, June 22 R = 26

Progress The hæmorrhagic vomits ceased after a few days, since then no symptoms of hæmorrhagic diathesis, discharged when 9 days old

Diagnosis Icterus with hæmorrhagic state and hæmatemesis

In addition, 28 other infants were examined as to their R-values, icterus index and red-cell counts and hæmoglobin readings The findings are recorded in table I The R-values of the cases described as well as of the normal infants are shown in fig 2

DISCUSSION

It was found that, in a group of infants with certain diseases, the clotting power (prothrombin content) of the blood was much reduced, while in normal infants there was a moderate reduction during the first week after birth The infants with much reduced prothrombin (i.e., with much increased R values) were suffering from icterus gravis with anæmia and bleeding (2 cases), 2 cases of anæmia neonatorum with icterus hydrops congenitus with icterus but without anæmia (1 case) and finally moderate hæmorrhagic diathesis (hæmatemesis) without significant anæmia or icterus (1 case) Of these 6 infants with much reduced prothrombin only 3 actually bled, while the other 3 had anæmia and icterus (2 cases) and hydrops (1 case) and only a latent bleeding tendency

The symptoms of these children belong to a clinic triad which it has been suggested are related—namely, *icterus gravis neonatorum, anæmia neonatorum* and *hydrops congenitus*

Hæmorrhagic state in newborn Slight degrees of hæmorrhagic diathesis are common in the newborn, but severe cases are rare The hæmorrhages may occur as a symptom per se or they may accompany other diseases They are most frequently seen in the first week after birth (from the 2nd to the 5th day) and appear as hæmorrhages from the intestine, urinary tracts, vagina, mouth, stomach or skin In most cases they disappear without treatment, and are not followed by bleeding tendency, but in rare cases they may be so severe that death occurs The treatment consists of blood-transfusion which has a momentous effect

Many theories were put forward to explain the bleeding tendency until it was shown that the blood of the newborn clots more slowly than the blood of older infants (Rodda 1920, Beveridge 1928) Brinkhous, Smith and Warner (1937) showed that the prolonged clotting time in normal infants is due to a decrease in prothrombin These authors further showed, in accordance with Whipple (1912), that some cases of hæmorrhagic diathesis in infants was characterised by decrease in prothrombin Schwarz and Ottenberg (1910) found a considerably reduced clotting power of the blood in 2 cases of hæmorrhagic diathesis in newborn

While the present investigation was being carried out two papers of Waddell, DuPont Guerry, Bray and Kelley (1939) and Waddell and DuPont Guerry (1939) appeared, in which they demonstrated that in normal infants prothrombin estimated by Quick's method (1935) decreases in the first days after birth and then attains normal values within 8 days They also found that ingestion of vitamin K may in a very short time (a few hours) raise the prothrombin to normal Our results are in full agreement with the findings of these authors Two infants both aged 4 days and having R values of 8 and 4 (corresponding to approximately 12 and 25 per cent of the normal prothrombin) were given an intravenous injection of vitamin K After 4 hours we found that the R values had fallen to 2.5 and 2 respectively (corresponding to

FIG 2

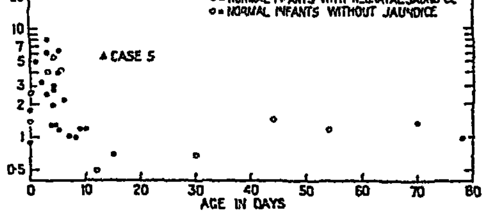


TABLE I—NORMAL INFANTS

Child No	Sex	Age (days)	R-values	Hæmorrhages	Icterus index*	R B C s (millions) Hb. (per cent)	Diagnosis
1	F.	0	1·8	—	+		Icterus neonatorum
2	M.	0	0·9	—	10		" "
3	M	0	2·6	—			Normal
4	M.	0	1·4	—			"
5	M	1	5	—	+	5·00	Icterus neonatorum
6	M	2	3·2	—	30	4·75	" "
7	M	3	6	—	10	4·51	" "
8	M.	3	2·5	—	60	5·94	" "
9	M.	3	4	—	—	4·77	Normal
10	F	3	8	CH	15	4·40	Icterus neonatorum, cephalhæmatoma
11	F	4	1·3	—	+	4·06	Icterus neonatorum
12	M	4	3	—	+	5·60	" "
13	F	4	2	—	15	4·37	" "
14	M	4	1·3	—	30	5·14	" "
15	F.	4	2·8	—	60		" "
16	M	4	5·6	C H	—	5·96	Cephalhæmatoma
17	F.	5	4	—	+ +	Hb. 130	Icterus neonatorum
18	F	5	1·2	—	+	3·75	" "
19	F	5	6·4	—	+ + +		" "
20	M	5	1	HS	—		Hæmorrhage in scrotum, otherwise normal
21	M	6	2·2	—	130	5·00	Icterus neonatorum
22	M	7	1	—	20		" "
23	F	8	1·6	—	+ +	Hb 140	" "
7	M	8	1	—	30	3·65	" "
24	M	9	1·2	—	—	4·59	Normal
17	F	10	1·2	—	+	4·75 Hb 126	Icterus neonatorum
13	F.	12	0·5	—	—		Recovered from icterus; now normal
11	F	15	0·7	—	+	4·46	Icterus neonatorum
25	F	30	0·7	—	—		Normal
26	M	44	1·5	—	—	Hb 113	Debilitas congenita
27	M	54	1·2	—	—	Hb 76	Congenital pyloric stenosis
28	M	70	1·1	—	+ +	4·24 Hb 89	Hepatitis
28	M	78	1·0	—	+ +		"

* Subjective estimations indicated by + or —
CH. = Cephalhæmatoma HS = Hæmorrhage into scrotum.

approximately 40 to 50 per cent prothrombin) We also showed that there is no difference in the alteration in the prothrombin of non-icteric and slightly icteric normal infants

It therefore seems almost certain that the decrease of prothrombin must be due to a vitamin-K lack which develops in the first few days after birth and thereafter ceases The explanation must be that an insufficient quantity of vitamin K is supplied to the newborn child which apparently has no store of this substance or is even somewhat deficient already at birth After birth the organism must be supplied with vitamin K The supply depends upon the presence of the vitamin in the intestine, as well as on the absorption The vitamin in the intestine comes partly from ingested food, the milk, and partly from bacterial processes Milk is a poor source of vitamin K and it is unlikely that much formation of vitamin K by bacteria is taking place during the first days after birth Conditions are therefore in favour of the development of vitamin-K lack. Inadequate absorption cannot be excluded, because sufficient knowledge about the composition and quantity of the bile secreted by the newborn organism is still lacking.

The time when the hæmorrhagic diathesis is seen coincides with the period of prothrombin reduction, and as we have observed a more pronounced reduction of prothrombin in a case of hæmatemesis, one may assume that the deficiency of prothrombin is the cause of the hæmorrhagic diathesis. The fact that the hypoprothrombinæmia could be cured by vitamin K makes it likely that a vitamin-K lack is the real cause of the hæmorrhagic diathesis.

Sanford (1939) has stated that the prothrombin of the newborn is normal or even increased in the first 4 days after birth, and that the coagulation-time is normal, but this must be due to his inappropriate methods However, Sanford and Leslie (1938) agreed with us that the coagulation-time of infants with hæmorrhagic diathesis was delayed, but they ascribed this fact to a dysfunction of the platelets, an explanation which has not been sufficiently proven.

THE TRIAD OF ICTERUS GRAVIS NEONATORUM, ANÆMIA NEONATORUM AND HYDROPS CONGENITUS

Anæmia neonatorum is a severe anæmia, which is present at birth or when the child is a few days old. The anæmia, which sometimes is hyperchromic, is the principal feature, while icterus, enlargement of the liver and spleen, the hæmorrhagic state and an increased number of nucleated red-cells in the blood are occasionally found The disease has been known for some time. Buchan and Comrie (1909) gave an exhaustive description of 4 cases About 50 cases have now been described The treatment has been blood-transfusion, liver preparations and iron The prognosis is good and spontaneous recovery may occur

Icterus gravis neonatorum (familiaris) differs from the physiological icterus neonatorum in being already present at birth or a few hours after, in increasing constantly, and in being frequently accompanied by enlargement of liver and spleen and sometimes universal hydrops Buchan and Comrie (1909) drew attention to the simultaneous occurrence of icterus gravis neonatorum and an abnormal blood-picture with severe anæmia and a large number of nucleated red-cells; they further demonstrated an abnormal increase of blood-forming foci in the liver. The disease is often familial and has a bad prognosis

Hydrops congenitus is a rare condition characterised by a severe universally distributed œdema The children are often icteric and often premature The differential count shows nucleated erythrocytes in large number and usually anæmia. The disease is as a rule lethal Rautmann (1912) introduced the term "erythroblastosis" because in one case of the disease he found numerous erythroblasts in the liver and in the spleen and suggested that this finding had a relation to the origin of the disease.

Most authors of recent years (particularly Diamond, Blackfan and Baty (1932), Péhu and Noel (1928), Lehndorff (1934) and de Lange (1932)) are of opinion that the three diseases—anæmia neonatorum, icterus gravis neonatorum and hydrops congenitus—are closely related to each other, and that the causative pathological process is the erythroblastosis—the presence of abnormal erythroblast foci in liver and spleen The primary ætiological significance of the erythroblastosis is, however, not supported on a sufficient pathologic anatomical basis, and does not at present explain why the same pathological change can give rise to three different syndromes The reasons which suggest a mutual relation are the clinical and hæmatological resemblances, and the fact that it has repeatedly been observed that a woman has borne a child with icterus gravis and later a child with hydrops, and likewise that one and the same woman has had a child with anæmia neonatorum and one with hydrops In one of our cases where a pair of twins suffered from anæmia gravis, the mother had previously borne two children, which were icteric and died ½ hr and 8 days after birth In both cases the disease was probably icterus gravis In two of our cases the icterus gravis was accompanied by anæmia and hæmorrhagic diathesis and in one of the cases also by erythroblastosis In our case of hydrops congenitus numerous erythroblasts were found in the blood

Since there appears to be a support for the mutual relation of these syndromes, it is the more remarkable that all the six patients we have examined have had one new common symptom—lowered prothrombin in the blood In two cases (Nos 1 and 6) vitamin K treatment was attempted In case 1 an emulsion of 10,000 units vitamin K with 100 mg sodium desoxycholate was given by stomach tube, while 40,000 units were given intramuscularly in oil solution, and in case 6 4000 units were given intravenously In the first case 20 ml of blood had been given intravenously 2 days before without effect Two days after the vitamin K treatment the prothrombin level was normal In case 6 some increase of prothrombin was found 4 hours after the intravenous ingestion of vitamin K and a considerable increase was seen 45 hours later

It is almost certain that the prothrombin deficiency found in icterus gravis is also due to vitamin K lack, as it is unlikely that the blood coagulation in case 1 should have become normal in the course of 2 days if vitamin K had not been given (In case 1 the prothrombin level was almost zero 30 days after birth when the treatment took place)

The explanation of the vitamin K lack demonstrated in connexion with these diseases is not so clear as it is in normal or slightly icteric infants It has still to be seen whether a decrease of the bile acid present in the intestine during digestion may be important by causing an insufficient absorption of fat and fat soluble vitamins A Pettenkofer reaction carried out on the fæces was negative, but an answer to the question requires a more thorough investigation when a similar case is available A complete obstruction of the bile duct may be excluded because the fæces was not acholic at any time Buchan and Comrie (1909) found in three cases rather closely resembling our cases 1 and 2, signs of difficult passage through the bile ducts It could be imagined that in these cases a congenital—anatomical or functional—obstruction of the flow of bile occurred In our case 2, where a very low prothrombin level was observed one day after birth, it is, however, likely that another mechanism has been operating than insufficient absorption from the intestine Nor is it likely that vitamin K lack would be due to an insufficient development of the bacterial flora in the intestine 30 days after birth We have not yet had opportunity to finish the examination of the possibilities suggested above

It is known from numerous investigations on vitamin K lack in animals (chicks and rats) that K lack per se does not (in these animals) give rise to icterus It is therefore improbable that K lack is the cause of the whole complex of symptoms—it may be merely an accompanying phenomenon

Our studies do not give any support for the view that treatment with vitamin K has had any influence on the course of the anæmia beyond a hæmostatic effect

SUMMARY

1 In normal infants a moderate vitamin K lack develops during the first few days after birth, and disappears within a week This results in a hypoprothrombinæmia, which is the cause of the commonly seen slight hæmorrhagic diathesis in newborn Its cause must be insufficient supply of vitamin K from the intestine

2 In diseases belonging to the clinical triad of icterus gravis neonatorum, anæmia neonatorum and hydrops congenitus, a very considerable hypoprothrombinæmia has been demonstrated Ingestion of vitamin K (together with bile salt) by one of the patients resulted in a rapid increase in prothrombin, one may therefore presume that the hypothrombinæmia in this case was due to vitamin-K lack In cases where a complete lack of prothrombin is seen one day *after birth, other causes than insufficient absorption* from the intestine must be operating

Most of the normal infants were examined in the maternity department of Rigshospitalet, Copenhagen Thanks are due to Professor Hauch and Professor Rydberg for permission to carry out the investigation The work has been supported by a grant from the Rockefeller Foundation and from the Josiah Macy, Jr Foundation

REFERENCES

Beveridge, R S (1928) *Arch Dis Child* 3, 39
Brinkhous, K M, Smith H P, and Warner, F D (1937) *Amer J med Sci* 193, 475
Buchan A H, and Comrie J D (1909) *J Path Bact* 13 398
Dam H, Geiger, A Glavind J Karrer, P, Karrer W Rothschild, F, and Salomon H (1939) *Helv chim Acta* 22, 310
Dam, H, and Glavind J (1938) *Lancet* 1, 720
Diamond, L K, Blackfan, K D, and Baty, J M (1932) *J Pediat* 1, 269
Gram, H C (1921) *J biol Chem* 49 279
— (1922) *Acta med scand* 56 107
de Lange, C (1932) *Acta pædiatr Stockh* 13, 292
Lehndorff, H (1934) *Z Kinderheilk* 56 422
Mannheimer, F (1935) *Nord med Tidskr* 9, 881
Péhu M, and Noel, R (1928) *Arch Méd Enf* 41, 321
Quick A J Stanley Brown M, and Bancroft F W (1935) *Amer J med Sci* 190 501
Rautmann H (1912) *Beitr path Anat* 54, 332
Rodda F C (1920) *Amer J Dis Child* 19 269
Sanford, H N Brennemann s Practice of Pediatrics, 1939 vol 3
Schwarz H, and Ottenberg R (1910) *Amer J med Sci* 140 17
Waddell W W, DuPont Guerry, Bray, W E, and Kelley, O R (1939) *Proc Soc exp Biol N Y* 40 432
Waddell, W W and DuPont Guerry (1939) *J Amer med Ass* 112, 2259
Whipple G H (1912) *Arch intern Med* 9, 36
— (1913) *Ibid*, 12 637.

" It is easy to imagine a large brained ape, quite as intelligent as man, who was yet devoid of altruism, cruelty or superstition who was neither brave nor cowardly, who had no neurotic fears to master or succumb to, who was, in short, inhuman But the ape, however stupid, who buried his departed parents with an offering of nuts, or dismembered his slain opponents to prevent their resurrection, or whose conduct was in any other manner determined by delusion, would at once proclaim his affinity with man Therefore the main difference between man and other animals is not so much his greater intelligence but the defects peculiar to his intelligence, almost one may say his capacity for madness "—ROGER MONEY KYRLE in Superstition and Society, 1939

NUTRITIONAL DEFICIENCY OF VITAMIN K IN MAN

A STUDY OF FOUR NON-JAUNDICED PATIENTS WITH DIETARY DEFICIENCY

By Robert Kark, M.R.C.P.*

RESEARCH FELLOW IN MEDICINE AT HARVARD MEDICAL SCHOOL, RESEARCH FELLOW, THORNDIKE MEMORIAL LABORATORY, BOSTON CITY HOSPITAL; AND

Eugene L. Lozner, M.D. Cornell

RESEARCH FELLOW IN MEDICINE AT HARVARD MEDICAL SCHOOL; ASSISTANT RESIDENT PHYSICIAN, THORNDIKE MEMORIAL LABORATORY, BOSTON CITY HOSPITAL

Several methods (Quick, Stanley-Brown, and Bancroft 1935, Warner, Brinkhous, and Smith 1938, Dam and Galvind 1938) have been developed for the estimation of the prothrombin concentration of the blood which are apparently more specific for this substance than those (Howell 1914) previously used. By these methods decreased blood-prothrombin levels which respond to administration of vitamin K with bile salts have been demonstrated (Butt, Snell, and Osterberg 1938, Brinkhous, Smith, and Warner 1938) in patients with obstructive jaundice and in those with biliary fistula. In these conditions it appears that the absence of bile from the intestinal tract may interfere with the absorption of the fat-soluble vitamin K.† Decreased prothrombin levels which do not respond to this therapy have been observed in other conditions, notably some types of parenchymatous hepatic insufficiency (Quick 1938) In newborn infants and in the hæmorrhagic disease of the newborn prolonged prothrombin-times which respond to vitamin-K therapy have been reported by Waddell and Guerry (1939).

In chicks nutritional deficiency of vitamin K causes a diminished prothrombin level and a hæmorrhagic diathesis (Dam 1935) However, so far as can be ascertained, no cases have been observed in man in which a nutritional deficiency of vitamin K may have been a factor in the production of a diminished prothrombin level It is the purpose of this communication to report four patients with known deficiency disease of nutritional origin in whom diminished prothrombin levels were incidentally discovered These levels returned to normal after oral vitamin-K therapy without bile salts.

CASE-RECORDS

Case 1.—A widow, aged 50, with a two-year history of syphilitic aortic insufficiency and a one-year history of tabes dorsalis, who lived alone and during the past year partook of a diet deficient in fruits and green vegetables. No antisyphilitic therapy had been given There was no history of alcoholism. While in the hospital for observation she developed a large ecchymosis on the thigh The tourniquet test gave a positive result, and no vitamin C was found in the blood plasma. Scurvy was diagnosed.

Case 2.—A widower, aged 55, who lived alone for nine years after the death of his wife and during this time prepared his own meals and existed on a diet deficient in fruits and green vegetables. No history of alcoholism could be elicited. Seven weeks before admission he developed large ecchymoses over both legs, and three weeks later his gums became swollen and spongy and bled on the slightest trauma. The tourniquet test was positive and no vitamin C was found in the blood plasma. There was no history of syphilis, but his blood gave a positive result when tested for this condition. Scurvy was diagnosed.

Case 3.—An unemployed baker, aged 49, who had lived alone for the past three years and prepared his own meals. He almost never ate fruits or green vegetables. There was no history of alcoholism. Three weeks before admission he developed ecchymoses over both legs and swollen spongy protruding gums which bled easily. For the past six years he was known to have tertiary syphilis and had been given intensive specific therapy. On examination the tourniquet test was positive and there was no vitamin C in his blood plasma. Scurvy was diagnosed.

Case 4.—A plasterer, aged 64, who lived apart from his family For at least five months he had eaten irregularly and had taken a minimum of half a pint of whisky daily. After considerable exposure to sunlight six weeks before admission he developed a dermatitis of both hands and face, which progressed in severity until admission. There was no vitamin C in his blood. Pellagra with subclinical scurvy was diagnosed.

INVESTIGATION

On admission each patient was made to rest in bed, and the diet was limited to the following foods: whites of eggs, white bread, water biscuits, butter, spaghetti, rice, bacon, corn syrup, tea, coffee, and milk boiled for five minutes This diet contained insignificant amounts of vitamin C, vitamin-B complex, and (so far as is known) vitamin K. On this regime the symptoms and signs presented by these patients on admission abated considerably. It has been noted in the past that patients with nutritional deficiency may improve on a deficient diet when resting in bed (Spies 1932, Minot 1939)

The vitamin-C content of the blood was estimated by the method of Farmer and Abt (1936) The urinary urobilinogen was quantitatively estimated by Watson's (1937) method Prothrombin-times were observed by the method of Quick et al. (1935) with the following modification:—

Both the control plasma and the patient's plasma were diluted with prothrombin-free human plasma prepared by the Seitz technique (Lozner, Kark, and Taylor 1939).

The following dilutions were made:

100% = undiluted unknown plasma
80% = 0 4 c cm unknown plasma
+ 0 1 c cm prothrombin-free plasma.
60% = 0 3 c cm. unknown plasma
+ 0 2 c cm prothrombin-free plasma.
40% = 0 2 c cm unknown plasma
+ 0 3 c cm prothrombin-free plasma
20% = 0 2 c cm unknown plasma
+ 0 8 c cm prothrombin-free plasma

Prothrombin-times were then observed for each dilution.

Two sets of prothrombin determinations were made on each patient, the second three days after the first. After these the patients were each given eight capsules of vitamin K‡ without bile salts by mouth. Next day the prothrombin determinations were repeated. Eight additional capsules of vitamin K were then given to each patient daily for the next two days, and another determination of prothrombin-time was made Vitamin-K therapy was then discontinued, the patients took the same diet, and prothrombin observations were made at weekly intervals for the next month

---

* During the tenure of an Adrian Stokes memorial fellowship at Guy's Hospital medical school, London.

† The tenability of this hypothesis may be affected by the announcement in the *Journal of the American Chemical Society*, July, 1939, of water soluble naphthaquinone derivatives possessing activity resembling that of vitamin K in the treatment and prevention of hæmophilia in chicks.

‡ The vitamin K used was Klotogen, 37,500 Dam units per capsule which was furnished by the Abbott Laboratories, North Chicago, Illinois.

DISCUSSION OF RESULTS

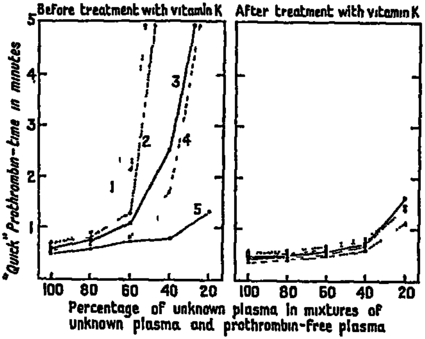
The results are summarised and graphically represented in the accompanying table and figure respectively All 4 patients showed initially a prolonged prothrombin-time, which was particularly well brought out when the diluted plasma was used Twenty-four hours after the start of administration of vitamin K the prothrombin time in each case was essentially normal During the next two days additional vitamin K was given, after which the prothrombin times were still normal and remained so during the next month, while the patients continued to take the deficient diet without additional vitamin K

Vitamin C therapy was instituted in case 1 after the initial prothrombin observation Ascorbic acid 400 c cm was given daily by mouth, and three days later the vitamin C level of her plasma had risen from 0 to 0 42 mg per 100 c cm At this time a second observation of the prothrombin time was made, and this was still greatly prolonged Cases 2 and 3 were not treated with ascorbic acid during the period of observation, and the plasma vitamin C remained at 0 From the foregoing observations it appears that no correlation exists between vitamin C therapy, or its level in the plasma, and the prothrombin times

The origin of the prothrombin deficiency in these patients cannot be related to biliary obstruction, to biliary fistula, or apparently to liver disease In each case the icteric index, blood-fibrinogen, and daily urinary urobilinogen were within normal limits

EFFECT OF ORAL VITAMIN K THERAPY ON THE "QUICK" PROTHROMBIN-TIME OF PATIENTS WITH NUTRITIONAL DEFICIENCY

Date	Patient	"Quick" prothrombin times of mixtures of unknown plasma and prothrombin free plasma (secs) Unknown plasma in mixtures 100 %	80 %	60 %	40 %	20 %	Ascorbic acid in plasma (mg per 100 c cm)	Daily urinary urobilinogen (mg)
May 23	Control	21	26	30	43	102	0 76	—
	Case 1	27	38	71	230	600 +	0	0 9
	" 2	32	40	40	116	600 +	0	0 56
	" 3	30	34	62	130	600 +	0	0 18
	" 4	27	36	59	175	600 +	0	0 5
May 26	Control	30	35	43	47	70	—	—
	Case 1	36	65	128	600 +	600 +	0 42	3 23
	" 2	36	4.	66	167	600 +	0	trace
	" 3	31	40	50	102	600 +	0	"
	" 4	39	48	78	300	600 +	0	"
After above observations each patient was given eight capsules of vitamin K by mouth								
May 27	Control	25	28	32	43	89	—	—
	Case 1	27	30	41	46	84	—	1 70
	" 2	26	20	33	46	99	0	trace
	" 3	28	20	33	46	88	—	"
	" 4	22	26	20	37	70	0	"
After above observations each patient was given sixteen additional capsules of vitamin K by mouth								
May 29	Control	27	29	34	38	54	—	—
	Case 1	34	35	41	47	81	1 05	0 94
	" 2	34	38	41	44	80	0	1 26
	" 3	34	36	44	50	83	0	0 88
	" 4	30	32	35	37	48	—	3 36
June 26	Control	23	25	27	36	49	—	—
	Case 1	24	26	29	35	47	1 05	—
	" 2	24	20	29	35	50	0	—
	" 3	23	24	28	31	52	—	—
	" 4	22	25	27	33	45	—	—



Effect of oral vitamin K therapy on the "Quick" prothrombin time of patients with nutritional deficiency In the interval between the two sets of observations each patient was given eight capsules of vitamin K by mouth without bile salts Curve 5 is from a normal control

In 3 of the 4 patients blood tests for syphilis gave positive results It seems advisable, therefore, to exclude this condition as a causal factor in the prolongation of the prothrombin time Control observations on 3 patients with tertiary syphilis, in a good nutritional state, were entirely normal

The 4 cases reported have two outstanding features the history of dietary deficiency with the development of scurvy in 3 and of pellagra and subclinical scurvy in 1, and evidence of a prothrombin deficiency which responded to oral vitamin K therapy without bile salts The suggestive evidence of the former and the objective evidence of the latter seem to point to a nutritional deficiency of vitamin K as the ætiological basis of the observed prolonged prothrombin times None of these patients, however, showed the extreme diminution of prothrombin which has been described in prolonged obstructive jaundice (Brinkhous, Smith, and Warner 1938, Quick 1938) and has been associated with the hæmorrhagic tendency of patients with this condition In view of the fact that the hæmorrhagic diathesis associated with prolonged obstructive jaundice develops only when the prothrombin time is considerably longer than in these 4 cases, it seems doubtful that the prothrombin decrease was the cause of the hæmorrhagic manifestations in these patients, for the hæmorrhages were classical scurvy and no ascorbic acid was found in the blood plasma

These observations offer further evidence that nutritional deficiency in man is rarely, if ever, confined to a single factor

SUMMARY

In 4 patients, each presenting a history and physical signs of dietary deficiency disease unassociated with jaundice, the prothrombin time was found to be prolonged The oral administration of vitamin K without bile salts was followed by a prompt return of the prothrombin time to normal

It appears that there may be dietary deficiency of vitamin K in man

We thank Dr F H L Taylor for the estimations of ascorbic acid and fibrinogen in the plasma.

References at foot of next page

SOME FRACTURES OF THE SKULL

By J. Hogarth Pringle, M.B. Edin., F.R.C.S.
CONSULTING SURGEON TO GLASGOW ROYAL INFIRMARY

The *generally accepted theory of the production* of fractures of the skull by diffuse violence is that the skull bursts under the pressure. Fig. 1, showing a decalcified but otherwise normal skull under transverse compression in a clamp, illustrates how such deformation of the skull causes a longitudinal bulging. Violence applied to a skull to the extent of causing a fissure has the same effect, which continues until the cohesion of the osseous tissue is overcome, when the skull bursts or tears outwards. Fractures arising in this manner, whether the violence is applied unilaterally or bilaterally, are seen as fissures, which continue to extend as long as the force is in action and may be prolonged over a wide surface of the skull. In this way they differ from those fractures resulting from localised violence which are often confined to the area receiving the impact. The bone is there fractured by bending inwards, and a depressed fracture results. The depressed bone may be broken into several fragments, and there may be fissure-fractures running from the depressed area at various angles and often reaching the base of the skull. It appears that, the more diffuse the violence, the more likely is the base of the skull to be involved. It is possible, however, that, owing to the presence of the numerous foramina in the base, many of these fissures begin in the base of the skull and extend up towards the vault.

FISSURE-FRACTURE OF THE OCCIPITAL BONE

It also appears that fissure-fractures tend to run in certain fairly well-defined lines. For instance, there is a typical fissure-fracture seen in the occipital bone and often confined to that bone. It tends to run as a single fissure more or less vertically down into the cerebellar fossa but may be diverted there medially into the foramen magnum, or/and laterally towards the jugular foramen; in some instances it may cross the petrous bone and end in the middle fossa. This fracture results from violence applied over the occipital bone at, or to one side of, the occipital protuberance, as indicated by the very constant presence of a contused wound of the scalp which, in my experience is usually at a lower level than the upper end of the fissure and very seldom exposes the bone beneath it. In most cases this fracture results from a fall on the back of the head. This type of fracture is of great importance, for it is constantly associated with extensive laceration of the anterior cerebral poles, causing large subdural collections of blood; and there may also be subtentorial injury, such as extradural hæmorrhage and laceration of the cerebellum, pons, or medulla. In my series of 366 undoubted fractures of the skull this type of fracture was seen at post-mortem examination 39 times; all of these patients were profoundly unconscious when admitted to hospital, and all of them died within a short interval after admission; no patient suspected to have a fracture of this type recovered.

PARIETOTEMPOROSPHENOIDAL FISSURE-FRACTURES

There is another type of fracture that is in some cases bilateral, but more often unilateral. The bilateral type courses over a wide area of the vault into, or from, the base of the skull, and runs a remarkably symmetrical course, involving very nearly the entire circumference of the skull; it has two terminal points, one on each side in the middle fossa, close to the foramen ovale, or rotundum, of each side. The violence which causes this type of fracture is applied 2–3 cm. anterior to the lambda, to judge again by the presence of hæmatomata and/or contused wounds of the scalp in that region. The fissure in the bone crosses the sagittal suture, passes below the two parietal eminences, down the temporal squamous bones, into the middle fossæ, and on to the sphenoid bone, but it may possibly begin in the base. In any case there results a bilateral parietotemporosphenoidal fissure running obliquely from a point in front of the lambda (fig. 2). This fracture is also of considerable importance, for, besides the probability of lacerating the cerebrum and causing subdural hæmorrhage, the fissure crosses, on each side, the posterior and the anterior branches of both middle meningeal arteries and may cause extradural hæmatomata from either source. Of 7 cases of this bilateral fracture which came under observation, in 3 there were bilateral extradural hæmorrhages, in 2 from the posterior branches of the artery on each side, and in 1 from the anterior branch of the artery on one side and from the posterior branch on the other. All these patients died; a post-mortem examination was made in 6 of these cases.

Fig. 1—A decalcified skull under transverse compression, showing elongation which would lead to bursting.

On the other hand, a unilateral fissure of a like character and associated with hæmatomata or contused wounds of the scalp just anterior to the lambda is met with. The fissure may begin over, or on either side of, the sagittal suture and may be confined to one side of the skull; or, crossing the suture, it courses down to the middle fossa of the opposite side. This type of fracture is also associated with laceration of the brain and subdural and/or extradural hæmorrhage. There were 22 fractures of this type in my series. Of these, 10 patients were operated on; 6 had extradural hæmorrhages that were evacuated, and 2 of them recovered, but the remaining 20 patients died.

DRS. KARK AND LOZNER: REFERENCES

Brinkhous, K. M., Smith, H. P., and Warner, E. P. (1938) *Amer. J. med. Sci.* 198, 50.
Butt, H. R., Snell, A. M., and Osterberg, A. E. (1938) *Proc. Mayo Clin.* 13, 711.
Dam, H. (1935) *Biochem. J.* 29, 1273.
— and Glavind, J. (1938) *Lancet*, 1, 720.
Farmer, W. J., and Abt, A. F. (1936) *Proc. Soc. exp. Biol., N.Y.* 34, 146.
Howell, W. H. (1914) *Arch. intern. Med.* 13, 76.
Lozner, E. L., Kark, R., and Taylor, F. H. L. (1939) *J. clin. Invest.* in press.
Minot, G. R. (1939) personal communication.
Quick, A. J. (1938) *J. Amer. med. Ass.* 110, 1658.
— Stanley-Brown, M., and Bancroft, F. W. (1935) *Amer. J. med. Sci.* 190, 501.
Spies, T. D. (1932) *Ibid* 184, 837.
Waddell, W. W., and Guerry, D. (1939) *J. Amer. med. Ass.* 112, 2259.
Warner, E. D., Brinkhous, K. M., and Smith, H. P. (1938) *Amer. J. med. Sci.* 198, 50.
Watson, C. J. (1937) *Arch. intern. Med.* 59, 206.

FACTORS DIRECTING THE FISSURES

Why are these fractures so constant in their course, in the one type vertically down the occipital bone and in the other obliquely downwards and forwards into the middle fossa, the violence being applied in both cases posteriorly and at points close to one another but below and above the lambda respectively?

One of the chief factors in determining the course taken by skull fractures is the arrangement of the osteogenic fibres of the individual bones, all of which now concerned, except the inferior part of the occipital, are developed in membrane in which these fibres radiate out fan like from a centre If one decalcifies one of these flat bones—e g , of an infant—and tries to tear it from one margin, a comparatively straight-running tear towards the centre of ossification is easily produced , but, if one now attempts to tear the tissue at right angles to the first tear—i e , at right angles to the run of the osteogenic fibres—it is not easy to start it, and, when it does begin, an irregular dentate tear results (fig 3) The vertical fissures seen in the occipital bone and those of the temporal squamosphenoidal type run, on the whole, closely in the line of the osteogenic fibres, and the oblique parietotemporosphenoidal fissures run almost exactly along these lines as they pass from those of one bone into those of the other

ELEVATED FRACTURE OF THE POSTERIOR FOSSA

There is a point in connexion with the vertical occipital fissures to which I desire to draw attention These are as a rule, single fissures, but it occasionally happens that, while the upper portion is a single fissure as far down the bone as the angle, open forwards, in the cerebellar fossa, which the upper vertical portion of the bone makes on the lower horizontal part, developed in cartilage, there is a tendency for the single fissure to separate into two limbs and so produce a Y shaped fissure, one limb of which runs forwards and inwards to the foramen magnum and the other towards the jugular foramen As the result of the flexion between the vertical and the horizontal segments of the bone, the triangular portion, or "tongue " between the two limbs of the Y is projected downwards and outwards from the skull into the suboccipital muscles and there is thus produced an "elevated fracture of the posterior fossa of the skull" as the result of indirect violence (fig 4) In some cases a single isolated V shaped fracture is produced at, or about, the same site in the bone The occurrence of these angulated fissures in practically the same area of the bone is curious May they result from the meeting of two portions of bone having a different texture owing to the difference in the ossification process ?

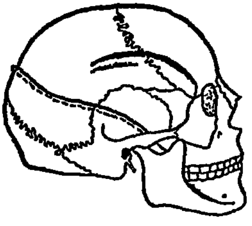


FIG 2—Diagram of a bilateral parietotemporosphenoidal fissure passing over the vertex and both sides of the skull

This elevated fracture of the base is of interest by reason of its being caused by indirect violence , but the violence is considerable in these injuries and great laceration of the hind brain, followed by hæmorrhage below the tentorium, results with early involvement of the medullary centres and death Elevated fractures of the skull are described as occurring in the vault and from direct violence—e g , sword cuts and hatchet wounds Of the latter variety I saw several, but the most serious cases that came under observation were the result of heavy falling weights, from accidents in coal-pits, by which large flaps of bone still attached to the scalp were sheared off the vertical part of the skull, usually the frontoparietal region, and considerably elevated above the normal level They were usually well ingrained with extraneous substances, and there were often large blood-clots between the bone and the underlying dura mater —extradual hæmatomata, in fact, but not causing pressure symptoms These injuries, although they looked serious, were well recovered from, after thorough cleaning up and replacing the bone-scalp flaps Another point is that, whereas these elevated fractures of the vault are always open fractures, those of the cerebellar fossa that came under observation at post mortem examinations, 5 in all, were all closed fractures

FRACTURES INVOLVING THE PETROUS BONE

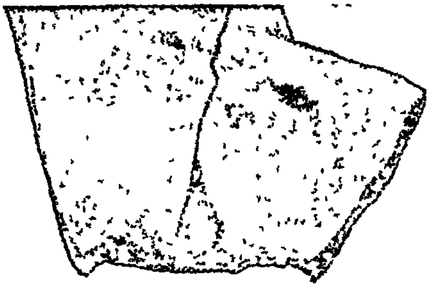
Fractures involving the petrous bone constitute a serious danger to the patient because of the constant accompaniment of intracranial hæmorrhage and the possibility of sepsis, besides the liability of implication of the seventh or eighth nerve There are four principal types of fracture of the petrous bone three of them tend to cross it in the sagittal plane, and the fourth in the coronal

(1) Median to the internal acoustic meatus a fracture may cross the carotid canal, and in rare instances the carotid artery has been wounded I saw several cases in which this part of the bone was fractured in 2 there were two fissures running parallel to each other and involving the entire thickness of this segment of the bone The bone at this part is so dense and so firmly locked in position that movement of the fractured fragments cannot take place readily, and the artery escapes in consequence

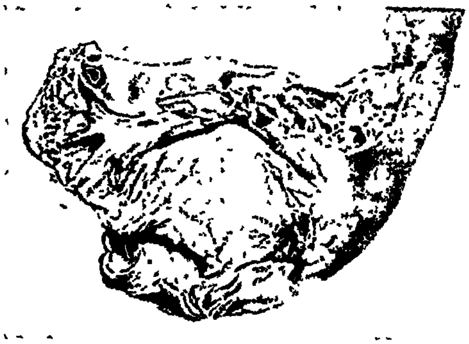
(2) A fracture may cross the bone at any point along the internal acoustic canal and involve one or both of the nerves traversing it

(3) A fracture may split the internal ear, passing through the semicircular canals and the vestibule (fig 5) The membrana tympani may or may not be ruptured , in the latter case, although blood may escape by the nares and mouth, none escapes from the external auditory meatus With this fracture it is practically certain there must be loss of hearing and paralysis of the facial nerve

(4) The fracture of the petrous bone most often seen is that which runs more or less transversely across the floor of the middle fossa at, or close to, the petrosquamosphenoidal suture often as a continuation of a vertical fissure down the temporal fossa (squamous bone) or as a continuation of an antero posterior fracture along the line of the occipitomastoid suture It involves the anterior surface of the petrous bone and, in doing so, opens up the tympanic cavity and the eustachian tube and the canal for the tensor tympani muscle , and the membrana tympani is often ruptured (fig 6) Hæmorrhage from the ear is usually present often followed by a flow of cerebro spinal fluid in large quantities which may continue for days This fracture is not uncommonly accompanied by an extradural meningeal hæmorrhage, the possibility of which must always be kept in mind where blood or cerebrospinal fluid escapes long and freely, for, owing to its escape, the pressure symptoms



4



6

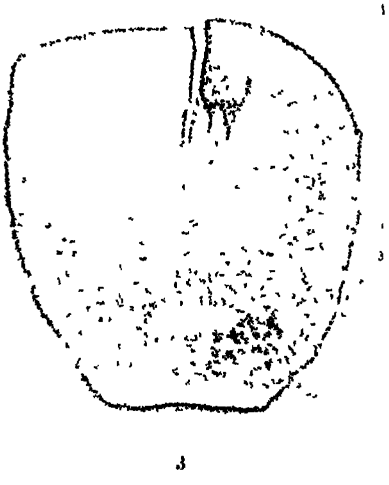
FIG 4—An elevated fracture in the left cerebellar fossa caused by a fall on to the back of the head.

FIG 6—Fracture along the left petrosquamosphenoid suture. The anterior aspect of the posterior fragment is shown. The fracture has opened the external acoustic meatus, mastoid cells, tympanum, eustachian tube, and canal for the tensor tympani muscle and exposed the petrosal nerve.

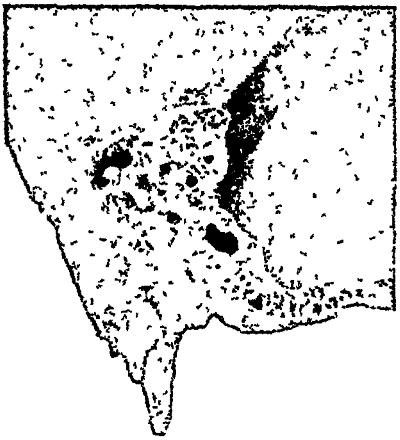
which would otherwise follow the hæmatoma may not develop, the fracture and the escape of the cerebral fluid acting as a safety-valve As long as an aural discharge continues to escape, there is always a risk of meningitis. Secondary fissures in the bone are often present, causing a comminution of the petrous bone, in consequence of which the facial nerve may be directly involved; but I do not find it noted that the eighth nerve was implicated during life in any of the instances in which I saw this fracture at post-mortem examinations There were to my knowledge 23 patients with this fracture in my series: 4 of them had extradural meningeal hæmatomata (1 of them bilateral), 2 had free cerebrospinal discharge, and 2 had complete facial paralysis

Injury of the seventh nerve —The seventh and eighth nerves may be torn across in the line of the fracture or be compressed secondarily by exudate into the bone canals through which they pass In my series 22 patients died, and at post-mortem examination all were found to have a fracture of the petrous bone in the sagittal plane at a point where the seventh nerve might be injured In only 3 of them, however, was it noted during life that there was interference with this nerve In 2 of these 3 patients the paralysis was incomplete and associated with a hemiplegia due to laceration of, and hæmorrhage from, the brain; in the third it was due to direct involvement of the nerve. It must be pointed out, however, that 15 of these patients died within a few hours of admission, and it may very well have happened that complete examination was impossible In the other 7 it is noted that there was no evidence of the seventh nerve's being implicated, yet at the post-mortem examination it was found to have been cut across in the fracture. These patients were so deeply comatose that no response of the facial muscles could be elicited, and it was equally impossible to test the function of the eighth nerve. On the other hand, among the patients who recovered 23 showed a defect in the facial muscles on one side: in 9 this was noted on admission and was complete and permanent, owing no doubt to direct injury to the nerve; in 3 others, making 12 in all, it was complete and permanent but was not observed until several days had elapsed from the date of the injury, in 8 others the defect was incomplete, its appearance being delayed until the third to the tenth day, and was recovered from—possibly in these cases being caused by compression of the nerve by exudation round it,

Injury of the eighth nerve. —Among the patients who recovered 8 had complete and permanent deafness, by aerial and bone conduction, on the injured side; 2 of them also had complete permanent facial paralysis There were 6 patients who complained of a defect in hearing which was temporary and was recovered from 2 of them had blood in the tympanic cavity without rupture of the membrana tympani; and 4 others had a ruptured membrane and bled freely from that ear. One patient, who died from a pneumococcal meningitis



3



5

FIG 3 A decalcified parietal bone of an infant, showing an almost straight tear in a line with the osteogenic fibres and an irregular dentate tear at right angles to the osteogenic fibres

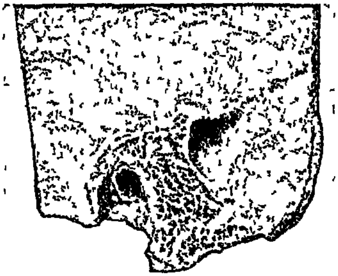
FIG 5 The medial surface of the lateral portion of a right temporal bone fractured across the labyrinth, the tympanum, from the internal aspect, with the ossicles in situ the posterior extremity of the foot-plate of the stapes in the incomplete (fractured) fenestra vestibuli and below it the promontory, under the latter the fenestra cochleæ The dark oval, below and to the right, is part of the posterior wall of the internal acoustic meatus The seventh nerve, cut by the fracture, lies between the body of the incus and the horizontal semicircular canal The membrana tympani was not ruptured.

on the twenty-third day after admission, had complained of deafness in the right ear from the time he recovered consciousness and was completely deaf by bone and aerial conduction but showed no other paralysis He bled profusely from the right ear after admission, and this was followed by a free discharge of cerebrospinal fluid that lasted ten days At the post mortem examination the right eighth nerve was found to be completely divided at the outer limit of the internal acoustic meatus, but the seventh nerve, which was dissected for the entire length of the fallopian canal, was intact In most cases of permanent deafness after fractures the lesion is probably in the internal ear, a vertical or oblique sagittal plane fracture through the semicircular canals and vestibule is not uncommon (fig 5)

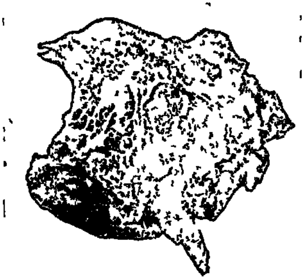
FRACTURE OF THE LID OF THE MASTOID ANTRUM

Closely related anatomically to the fractures of the petrous bone there is a fracture that I have never seen described It may be met with as an isolated fissure, in the sagittal plane, that follows closely the squamomastoid suture and does not in itself involve the petrous bone, but, at other times, it is seen in direct continuity with the petrosquamous fracture and, in consequence, is continued forwards into the middle fossa and, not uncommonly, is continued posteriorly along the occipitomastoid into the lambdoid suture or its neighbourhood

The squama of the temporal bone, in the process of development, sends a prolongation downwards which forms a large portion of the lateral wall of the mastoid process, it covers in the mastoid antrum and tympanic attic, and so forms the "lid" of these cavities The line of this suture remains evident in many adult skulls The fracture of this outer layer of the mastoid follows the line of the suture so accurately in some instances that it might be described as a diastasis of the suture In other cases the fissure passes down to the tip of the mastoid process or into the digastric groove and in this way shears off the entire outer wall of the mastoid process The fracture is probably more liable to occur in the "pneumatic" type of mastoid, cellular down to its tip The type of fracture is well seen in figs 7 and 8, in which the mastoid antrum and tympanic attic together with the entire lateral series of mastoid cells, are opened up besides the tympanic cavity The membrana tympani is often ruptured in the process The soft parts of the external acoustic meatus also may be torn across, the cartilaginous portion, sometimes, is accurately torn away from the osseous, in others, only a strip of the cartilaginous meatus may be torn off



7



8

FIG 7—Fracture of the "lid" of the right mastoid antrum The medial aspect of the lateral segment of a right temporal bone is shown with a complete separation of the lateral wall of the mastoid process, in one piece, down the line of the squamomastoid suture The cartilaginous portion of the external auditory canal has been torn away from the osseous portion

FIG 8—The lateral aspect of the median segment of the fracture shown in fig 7 The "pneumatic" mastoid process has been split along the squamomastoid suture, exposing the mastoid antrum and the tympanic attic The head of the malleus and the body of the incus are seen above the unruptured membrana tympani

I met with four instances of this fracture at post-mortem examinations, but I believe it is not an altogether uncommon fracture, and that many patients recover from it I believe that at least 11 patients were seen who had this injury and recovered It is the type of fracture that is specially associated with retro-auricular mastoid bruising and in some instances with bruising just in front of, and above, the attachment of the auricle also and œdema of the soft parts here and of the meatal walls, which prevents, so long as it persists an examination of the membrana tympani This swelling of the meatal walls, moreover, can be a cause of a temporary defect in hearing, which may also result from blood effused in the tympanum or from a rupture of the drumhead A laceration of the meatal lining may at times be continuous with a rupture of the drumhead and thus allow an escape of blood from the meatus Deafness, as seen in my cases, was temporary, and the facial nerve was not involved in any of these patients who recovered, and there was no evidence of any implication of this nerve in the patients who died, either in life or at post-mortem examination Pain over the mastoid was complained of by some of the patients or could be elicited by percussion, and there was a lowering of the pitch of the note obtained, which in several instances had a "cracked pot" quality, most noticeable when percussing over the base of the process the apical portion being held fairly steady by the muscular attachments of the cervical muscles These conditions when present are in my opinion highly *suggestive of* this type of fracture As one would expect, the tympanic and mastoid cavities tend to be filled with blood, and since it is an open fracture with direct access for infective agents from the nasopharynx or from the external meatus when the drumhead is ruptured there is a serious risk of infection

In the fatal cases of this type of fracture death took place within twelve hours after admission A post mortem examination was made in every case, and in none was there any evidence of infection the cause of death in each case being intracranial hæmorrhage One might have expected to find a surgical emphysema in some of the patients, but its presence is not noted in the records of any of them As a matter of fact, I cannot find any mention of this condition in any of my series of fractures of the skull, but, although there was no note of the escape of air into the tissues of the scalp, 2 cases of pneumocranium came under observation and, in one of them, it was practically certain there was a petrosquamous fracture.[1] It is not a bad rule to endeavour to prevent patients with fractures involving the air cavities of the skull bones from making forced expiratory efforts, if it can be explained to them what they must not do. When capable of understanding they should be encouraged to "sniff," which helps to clear the nasal passages and probably also the eustachian tube by producing a negative pressure, but not to use a handkerchief.

This fracture of the antral lid is an entirely different type of injury from the fracture of the mastoid portion of the temporal bone described by Boullet in a Paris thesis (1878). Boullet appears to have met with and described only one instance, that of a man who had been kicked by a horse. He succeeded in reproducing similar fractures by blows applied to the posterior border of the process. As I understand his paper, the patient had a comminuted open fracture in a wound of the overlying skin. The fractures of the antral lid which I saw at post-mortem examination and in all those patients in whom its presence was suspected during life were caused by indirect violence. They were open fractures only by reason of involvement of the tympanic cavity or of a wound of the meatal lining. From the internal aspect of the skull after removal of the brain the fracture is usually seen as a fissure, part of a fracture along the occipitomastoid and squamomastoid sutures into the middle fossa. Its real character will not be seen unless looked for.

SUMMARY

(1) The line followed by fissure-fractures of the vault of the skull is to a large extent determined by the run of the osteogenic fibres of the bones developed in membrane.

(2) An elevated fracture of the base of the skull in the cerebellar fossa can be caused by indirect violence.

(3) Four principal varieties of fracture of the petrous bone are described.

(4) A fracture of the "lid" of the mastoid antrum occurs which may be part of a fracture along the occipitomastoid and squamomastoid sutures ending in the floor of the middle fossa. It results from indirect violence. The outer wall of the mastoid process is fractured in a line following closely that of the squamomastoid suture. It opens up the mastoid antrum and the tympanic attic and probably occurs more often in mastoid processes of the "pneumatic" type.

The specimens illustrated showing fractures of the temporal bone, from patients who were under my care, are now in the museum of the Royal College of Surgeons, Edinburgh. Fig. 6 was drawn by Mr. R. W. Matthews and is reproduced by courtesy of the curator.

---

[1] Pringle, J. H. *Lancet*, 1938, 2, 724.

OUTPATIENTS AT LONDON HOSPITALS.—The King's Fund has issued a list of 13 teaching hospitals, 30 general hospitals and 31 special hospitals in London where the majority of the outpatient clinics are now working. The fund will shortly be sending a new edition of its outpatient timetable to all doctors within 11 miles of St Paul's. Meanwhile any doctor who wants information about outpatients should telephone to the Emergency Bed Service.

INTRAVENOUS INJECTION OF SODIUM SALTS IN SCIATICA

By H. B. Sutton, M.B. Dubl.

MENDEL in 1904 was the first to demonstrate the feasibility of injecting salicylates intravenously; he treated patients with acute, subacute, and chronic rheumatism, sciatica, lumbago, and pleurisy by this method. Among the advantages which he pointed out were the avoidance of unpleasant gastric symptoms, absence of prostration and profuse sweating, and prompter and greater relief of pain. Since then other work has been done on this subject.

Adnot (1916), who treated by this method a series of patients with rheumatic fever, concluded that the intravenous injection of sodium salicylate presented the "double advantage of avoiding stomach intolerance, and that its action is more rapid and more energetic." The advantage of avoiding gastric intolerance has also been pointed out by Vasavada (1923), Karamchandani (1928), Roy (1926), Schlesser (1922), Gilbert (1921), Lutembacher (1921), Carnot and Blamoutier (1925), and Connor (1914).

Some remarkable case-records have been published. Lemierre (1932) fully described a case of Still's disease of several years' duration. He said that, when the patient was first seen by him, the movements of her shoulders, elbows, wrists, and ankles were limited and painful, and the axillary, inguinal, and epitrochlear glands considerably enlarged. The patient had been treated for a long time with large doses of salicylates by mouth without any improvement. She was then given an intravenous injection of sodium salicylate daily for seven days. The pain disappeared completely, the movements improved remarkably, the glands became smaller, and the patient gained weight. There was no relapse. Lemierre concluded that salicylates administered intravenously could apparently produce good results in cases in which salicylates given by mouth had not benefited the patient. As regards sciatica, he said: "In some cases this medication is marvellous," and that "the remedy appears to be specific rather than symptomatic."

Lutembacher (1921) also cited cases of "rheumatism" which did not respond to salicylates given by mouth but quickly improved when treated with salicylates injected intravenously.

Carnot (1925) said that the intravenous administration of sodium salicylate avoided not only gastric intolerance but also other unpleasant symptoms, such as tinnitus. As a result of investigations he concluded that salicylates injected intravenously were rapidly eliminated: 1 g. in thirteen hours; 2 g. in eighteen to twenty-four hours; and 3 g. in thirty-six to forty-eight hours. Perhaps his most important observation was that to obtain an equivalent therapeutic effect only a tenth of the dose necessary by mouth was required to be given intravenously.

Published reports lead to the conclusion that the action of salicylates injected intravenously is not identical with that of salicylates given by mouth. Cases are cited in which no effect has followed the administration of salicylates by mouth, whereas rapid improvement or cure has followed their intravenous injection. They also show that there is a great difference between the effective doses according to the method of administration.

Sodium iodide, on the other hand, in the intravenous therapy of "rheumatic" diseases has not received much attention in published reports.

Vasavada (1923) said that "in old rheumatic cases to the sodium salicylates I add 15 gr. of sodium iodide for its resolvent action. Iodine introduced in this way is much more effective, and is well tolerated." Ruggles (1931) claimed that the intravenous administration of sodium iodide relieved the pain associated with herpes zoster

The investigation now described, which was instigated by a report published by Porter (1925), consists of the administration of both sodium salicylate and sodium iodide in a single solution by intravenous injection in 32 cases of sciatica, of which 20 were primary and 12 secondary

TECHNIQUE

Each injection consisted of 20 c cm of an aqueous solution containing sodium salicylate gr 15 and sodium iodide gr 15 The solution was prepared as follows —

The sodium salts were dissolved in previously sterilised and twice distilled water, without warming The solution was filtered through a Jena glass bowl and put up in 20 c cm sterile ampoules, which were quickly sealed, care being taken that the solution did not become too hot Sterility was further ensured by heating to 70° C for an hour on three consecutive days

The solution is readily decomposed by heat over 80° C and by light For this reason the solution was protected from light, so far as possible, both during its preparation and afterwards The ampoules were of plain (not coloured) glass, so that any subsequent decomposition of the solution would be readily detected. If decomposition sets in, the solution at first develops a pale straw colour and later a more definite yellow, due to the presence of free iodine Natural, as opposed to synthetic, sodium salicylate was used so as to avoid impurities

Prepared in this way the solution remains clear for three months or longer It apparently inhibits the growth of bacteria and fungi No growth took place in ampoules left open for six months

The injections were made with an ordinary 20 c cm Record syringe, the most prominent vein at the elbow being selected The injection must be given slowly, otherwise there may be pain at the site of injection All the solution injected should be injected intravenously, any inadvertent injection into the tissues causes great pain—without, however, any subsequent sloughing

RESULTS

In the 20 cases of primary sciatica pain ceased usually after about ten minutes If pain returned, it usually did not do so until after eighteen hours or more If a second injection was necessary, the result was better than that of the first injection In the 12 cases of secondary sciatica, due to some extraneous pathological condition, pain was diminished, but not abolished, usually after about twenty minutes or longer, the effect was usually lost after about three hours, and a second injection tended to produce less effect than did the first It therefore follows that, if the first injection does not cause much improvement in the sciatica, subsequent injections will not do so Any improvement in secondary sciatica is probably due to the analgesic action of the sodium salicylate, but in primary sciatica in all likelihood "rheumatic," the effect of the sodium salicylate appears to be specific rather than symptomatic

COMMENTS

The series of cases treated in this way is too small to justify definite conclusions nevertheless, the results seem to indicate that the intravenous injection of sodium salicylate and sodium iodide is of far wider value than is generally realised On the one hand, it can, and does rapidly cure uncomplicated cases of sciatica, on the other hand its lack of effect on secondary sciatica suggests its value in diagnosis This does not mean, however, that its use should obviate the necessity of a thorough examination in every case of sciatica

SUMMARY

(1) Intravenous injections of sodium salicylate and sodium iodide rapidly cured 20 cases of primary sciatica but produced no permanent result in 12 cases of secondary sciatica

(2) This selective action is probably due to the specific effect of sodium salicylate on "rheumatic" conditions, and, *it is suggested, may be of diagnostic* value

My thanks are specially due to Dr F M Hilliard, senior physician to the Victoria Hospital, Blackpool, and to Dr R E Horsfall assistant physician to the hospital, for allowing me to treat the cases, to the radiological staff, to the hospital dispenser who prepared the solutions, and to Mr R Thursz, assistant surgeon to the hospital, for help in translation

REFERENCES

Adnot (1916) Thèse de Paris
Carnot, P, and Blamoutier, P (1925) *Paris méd* 57, 477
Connor, L A (1914) *Med Rec* 1 323
Gilbert A (1921) *C R Soc Biol Paris* 2 421
Karamchandani P V (1928) *Indian med Gaz* 63, 192
Lemierre, A (1932) *Gaz Hôp Paris* 2, 1029
Lutembacher R (1921) *C R Soc Biol Paris*, 1 921
Mendel, F cited by Connor (1914)
Porter, F J W (1925) *Lancet* 2 1306
Roy, S C (1926) *Indian med Gaz* 61 549
Ruggles E W (1931) *Arch Derm Syph N Y* 23, 472
Schlesser, F (1922) Thèse de Paris
Vasavada D M (1923) *Indian med Rec* 43 316

CHANGES IN STORED BLOOD

By A. Macdonald, M B Aberd
CARDEN RESEARCH FELLOW, UNIVERSITY OF ABERDEEN, AND

G M Stephen, M B Aberd
ASSISTANT LECTURER IN BACTERIOLOGY IN THE UNIVERSITY

Much information has lately been gained about the therapeutic value of stored blood This knowledge has been acquired empirically and largely at the risk of the recipient, though no serious accidents have been reported, a better appreciation of the changes taking place during storage would, we believe, prevent the use of blood which though harmless is also probably useless Many workers have claimed beneficial results from the use of blood which had been stored for as long as six weeks It is important to emphasise, however, that a good colour and a clear supernatant fluid do not, as is commonly believed, by themselves indicate a useful blood

COLLECTION AND STORAGE

As the methods of collection and storage play a part in the keeping qualities of blood it is necessary to indicate briefly our technique The principle of the method is similar to that described by Boland, Craig and Jacobs (1930) and now recommended in a booklet by the Medical Research Council

The vacuum created by autoclaving a container partly filled with fluid provides suction for the withdrawal of blood The collecting vessel is a flat 20-oz. medicine bottle fitted with a metal screw-cap which has a small hole punched in the centre, to the under surface of which a rubber diaphragm 3 mm thick is carefully fitted The bottle is half-filled with I H T solution (Bagdassarov 1937), the screw-cap is loosely applied, and the apparatus autoclaved for 20 min at a pressure of 20 lb steam per sq in The screw-cap is firmly tightened before the bottle is removed from the autoclave and while the diluting fluid is still boiling. When cool, the neck of the bottle is covered with a sterile viscose cap. The apparatus for the removal of the blood consists of 10 in. of rubber pressure-tubing (internal diameter 3.5 mm.) into both ends of which is fitted an adaptor to take standard wire gauge No. 16 needles with short bevels. The adaptors are useful in avoiding air leakage, which commonly prevents the collection of sufficient blood.

The donor is prepared in the accepted way for any surgical operation, a sphygmomanometer cuff is placed round the upper arm, and the pressure maintained at about 75 mm. of mercury. The viscose cap is removed from the bottle and the collecting apparatus handed to the operator. (It is convenient to sterilise the rubber tubing with its needles already attached in a bacteriological Petri dish, as this minimises handling and possible contamination.) One of the needles is then introduced into a selected vein in the forearm, while the other is plunged vertically through the rubber diaphragm of the screw-cap. By holding the collecting bottle horizontally the blood runs directly into the I.H.T. solution and shaking is unnecessary. When the bottle is full, the needle is removed and a fresh sterile viscose cap fitted. Two bottles of blood (i.e., one pint) are usually taken from each patient, the needle being removed from the first and rapidly plunged into the second bottle. The blood is then stored in a refrigerator at 2°–4° C., the containers being packed on their sides to increase the area of interface between plasma and sedimented corpuscles—a procedure which according to Fåhræus (1930) retards degenerative changes in the blood. The blood should not be shaken until needed for transfusion, and it is possible, using containers of the type described, to remove fluid for sterility tests with a syringe and fine needle. Of 40 samples of blood examined only one had to be discarded because of contamination.

Before dealing with the cellular changes in the blood, something may be said of the diluting fluid used. I.H.T. is often recommended in preference to sodium citrate because it delays longer the onset of hæmolysis. This is only partly true, for if two samples of the same blood are stored, one in I.H.T. and the other in 10 per cent. of 3.8 per cent. sodium citrate, neither may show any trace of hæmolysis even after a month. It is only when the bloods are shaken up and spun down that the citrated specimen may show more hæmolysis. A greater objection to the citrated blood is, we believe, the presence of gross agglutination of the corpuscles and inability of the cells to go into suspension except with vigorous shaking. When I.H.T. is used, hæmolysis and clumping are less, and, on shaking, the cells of the blood almost immediately go into suspension.

ERYTHROCYTES

Different samples of blood vary so greatly in resistance that it is difficult to form a precise timetable of degenerative changes. The details given here are the average for 18 samples of blood examined. It must be remembered that in the blood-I.H.T. mixtures the number of cells per c.mm. is only half that found in normal blood.

Red-cell counts —

Initial count	2,800,000
After 2 days	2,720,000
,, 14 ,,	2,520,000
,, 21 ,,	2,250,000
,, 35 ,,	1,220,000

It should be noted that up to the end of the third week there may be no free hæmoglobin visible in the undisturbed supernatant fluid even though about a sixth of the erythrocytes have been destroyed. When obvious hæmolysis is present after four to six weeks of storage the total number of red cells present is commonly half that of the initial count. It follows that when transfusions are given with hæmolysed blood the total number of red cells may be little over one million per c.mm. of fluid.

Morphological changes.—Films of the blood-I.H.T. mixture were made in the usual way and stained by Leishman's method. Changes in form of some of the erythrocytes are seen even after twenty-four hours' storage. After two days, however, 2–3 per cent. of the red cells become spiked or stellate. At an earlier stage in degeneration small indentations, at first single and later multiple, are found in the otherwise clear-cut cellular outline. Later, these cells become stellate, and finally shrivel into knobbly or mulberry forms which readily burst, freeing their hæmoglobin and leaving the familiar ghostly shapes. The number of deformed red cells increases the longer the blood is kept, and morphological changes proceed more quickly than hæmolysis. After seven days, about 10 per cent. of the cells show abnormalities, and sometimes the proportion may be as much as 30 per cent. At the end of three weeks of storage, 15–30 per cent. of the cells are usually deformed. Later, when hæmolysis is obvious throughout the undisturbed supernatant fluid, only 10–15 per cent. of the erythrocytes may retain their normal contours. When blood of this age is treated with hypotonic saline the irregular cells, which have a greatly increased fragility, are destroyed, and a stained film of the deposit shows only normal forms. The irregular cells may also be removed from the blood by repeated washing in isotonic saline and centrifuging the deposit. It seems unlikely that such deformed and fragile cells can persist or maintain their function in the circulation of the recipient.

LEUCOCYTES

The decrease in number of all the white cells is much more rapid than in the case of the erythrocytes. In examining the typical count which follows, it must be borne in mind that the numbers are only half that of whole blood.

White-cell counts —

After withdrawal	3120
,, 24 hours	1980
,, 48 ,,	1180
,, 7 days	600
,, 14 ,,	320

At the end of the first week it is impossible to find any normal polymorphonuclear leucocytes, and by the end of a fortnight the remaining white cells are all small lymphocytes.

Morphological changes.—After two days in the refrigerator many polymorphonuclear leucocytes have burst, liberating their nuclei as small basophilic granules into a distended cell-membrane. Others show condensation of the nuclear material in the lobules, which have lost their connecting bands. Many red granules appear in the cytoplasm of the neutrophils so that at first glance there seems to be a great increase in eosinophils. These granules are usually bigger but sometimes smaller than in the normal eosinophil and are probably break-down products of the cell. After about five days the nuclei of the neutrophils are fragmented, but the cell-membrane remains intact, though grossly swollen, long after the contents of the cell are disorganised. The leucocytes also rapidly lose their phagocytic properties. We were unable to demonstrate the ingestion of *Staphylococcus albus* by leucocytes from blood which had been stored longer than twenty-four hours. The small lymphocytes are the most resistant members of the white cell series Degenerative changes may, however, be seen quite early, when some cells show large blue granules in the cytoplasm and small vacuoles in the nuclear protoplasm But the characteristic feature is a complete absence of cytoplasm, and it is these lymphocytic nuclei which persist when all other white cells are destroyed We have not been able to find either large lymphocytes or mononuclears in blood which has been kept longer than two days The platelets also disappear fairly quickly, though a few are still seen in blood which has been kept for a week

PERSISTENCE OF GROUPING

Elliott, Macfarlane and Vaughan (1939) noted in a small number of blood samples that the agglutinability of the erythrocytes to group sera decreased in from six to fifteen days and could be seen only microscopically Our own observations confirm this finding, but it is by no means constant, for example, in two specimens of blood (group A) kept for a month agglutination with specific sera was prompt and plainly visible to the naked eye On the other hand, examination of the supernatant fluid from stored blood shows that the plasma may still agglutinate cells of the appropriate groups for many weeks In one instance the supernatant fluid from group O blood which had been kept for nine weeks was able to agglutinate group B but not group A corpuscles in a dilution of 1 in 12—i e, a final titre of 1 in 24

FRAGILITY

According to Bagdassarov (1937) the fragility of the erythrocytes in hypotonic saline increases from the fifth to sixth day, and spontaneous lysis is evident after the fifteenth day In testing the fragility of stored blood it is undesirable to examine the same bottle repeatedly, as the daily shaking to remove samples in itself accelerates deterioration It is better to transfer the blood, immediately upon withdrawal from the patient, into a number of small containers, so that a fresh specimen can be used each day This has been our procedure The blood in each container was tested on three successive days, and commonly, even in the early days of storage, there was a progressive increase in fragility, showing that each time the blood is shaken degeneration is aided Taking the results of the first examination of each bottle, however, there was very little change in the resistance of the red cells to hypotonic saline until the eighth or ninth day, when there was an abrupt and definite increase of fragility By the twelfth day there was partial lysis in 0 8 per cent NaCl and by the eighteenth day complete lysis of all the corpuscles in each dilution of saline below 0 6 per cent In blood which has been kept longer than a month there may be complete lysis in all but isotonic solutions

SEDIMENTATION RATE

Sedimentation rate estimations were also performed on blood which had been previously undisturbed As the blood is diluted in equal parts with I H T solution the tests are not comparable to those carried out on whole blood For clear readings it is better to watch the fall of corpuscles over twenty four hours, as the sedimentation for one or two hours is too slow for the estimation of slight variations With these points in mind, however, the tests have some comparative value There was a progressive slowing of the sedimentation rate of the red cells, and a blood which fell, for example, 28 mm in the first twenty four hours dropped only 8 mm on the seventh day and 5 mm on the twenty-first day As there is evidence that a decrease in the sedimentation-rate of stored blood is an indication of degenerative changes in the corpuscles, we tried to inhibit this process (Fåhræus 1939) by keeping the blood at 52° C for ten minutes There was, however, very little change in the rate of sedimentation and always hæmolysis in the heated blood

We have not found it possible to carry out any biochemical tests on the stored blood The pH of the supernatant fluids, however, is on the alkaline side of neutrality, and no significant alterations during storage were noted The initial pH of the autoclaved I H T solution is about 8 0, while the pH of the supernatant fluid is commonly between 7 5 and 7 6 We have had a few estimations performed on the oxygen carrying capacity of the blood, but there seems to be no unexpected alteration of this property in the first fortnight of storage Spectroscopic examinations of blood samples a month old revealed only a trace of methæmoglobin

DISCUSSION

A good deal of attention has been paid by Continental workers to the changes taking place in stored blood Among others, Bagdassarov (1937) and Gnoiski (1938) found alterations in the blood which are in many respects similar to those described In this country less notice has been taken of these changes, and provided the appearance of the blood is normal and the fluid sterile the transfusion is often given with confidence

There are, it seems, two main reasons for the giving of stored blood The first and probably the most important is to increase the number of erythrocytes and therefore the oxygen carrying capacity of the recipient's blood The second is to give fluid which approximates to normal human plasma If the first is the physician's purpose, then he should remember both the decrease in the actual number of red cells in the stored blood and the fact that many of the remaining cells may have undergone definite morphological changes The common practice of noting the rise of hæmoglobin in the recipient's blood some hours after transfusion indicates only the immediate value of the transfused corpuscles We believe it is important to find out how long the increase of erythrocytes and hæmoglobin percentage is maintained Where the stored blood is given for its fluid value this question does not arise, though the corpuscles may possibly provide an erythrogenic stimulus It is probably correct to say that blood which has been kept for more than four weeks is likely to be no longer blood but a plasma dilution containing foreign protein in the form of lysed and damaged red blood cells

When a patient is urgently in need of additional oxygen carrying cells, the blood ought to be given as soon as possible after removal and certainly never after three weeks of storage Free hæmoglobin in the supernatant fluid is not an indication of commencing damage to the cells but rather a sign that every cellular constituent of the blood has already been considerably altered

SUMMARY

In blood stored in I H T solution there is not only a decrease in the actual number of, but also degenerative changes in, the remaining red blood cells These changes may be seen two days after withdrawal and increase slowly during storage

All the white cells of the blood rapidly decrease in number, and at the end of a week the remaining nucleated cells are small lymphocytes

The fragility of the stored corpuscles to hypotonic saline begins to increase from the eighth to ninth day while the sedimentation-rate of the cells gradually diminishes till by the twenty-first day of storage there is often no sedimentation.

The appearance of stored blood and particularly of the supernatant fluid is not a true index of its transfusion value

We wish to thank Prof. John Cruickshank for suggesting the work and for his help throughout.

REFERENCES

Bagdasarov, A (1937) *Sang*, 11, 466
Boland C R, Craig, N S, and Jacobs, A L (1939) *Lancet*, 1, 388
Elliott, G. A, Macfarlane, R D, and Vaughan, J (1939) *Ibid*, 1, 384
Fåhraeus, R (1939) *Ibid*, Sept 16, p. 630.
Gnolski, H. (1938) *Sang*, 12, 820

UNILATERAL HEREDITARY DEAFNESS

By Alexander Brownlie Smith, M D. Glasg, F R.C S E, D P.H.

LECTURER IN DISEASES OF THE EAR, NOSE AND THROAT IN THE UNIVERSITY OF EDINBURGH; ASSISTANT SURGEON IN THE EAR, NOSE AND THROAT DEPARTMENT AT THE ROYAL INFIRMARY, EDINBURGH

Unilateral hereditary deafness does not appear to have been often described. I have found only one reference[1] It is well known, however, that congenital defects of the labyrinth are common, and it has been estimated that half the cases of deaf-mutism are congenital The hereditary factor in deaf-mutism is easily traced, for the patients are segregated in special institutions, whereas persons with unilateral deafness lead normal lives and are only found accidentally. Their condition occasionally brings them to the outpatient departments of our hospitals, but very rarely can the otologist obtain a history of any hereditary factor Hence the history of the following family is of considerable interest.

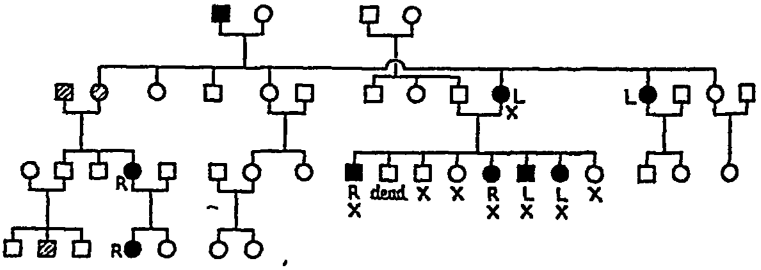
Mrs D brought her boy to see me with a view to operation on his tonsils and adenoids She told me that he was stone-deaf in one ear, and that she also was stone-deaf in one ear. I discovered that three of her seven other children were similarly affected, and her father also. Mrs D was a woman between 50 and 60 years of age; the eldest of her family was 18 and the youngest 5

I examined Mrs. D. and seven of her eight children They all had normal tympanic membranes, and not one of them had ever suffered from a discharging ear Three of the children had perfect hearing in both ears, but the mother and four of the children were stone-deaf in one ear though they had perfect hearing in the other The mother and two of the children were stone deaf in the left ear, while in the two other children the right ear was affected. All the deaf members of the family were stone-deaf to the voice when Bárány's noise-box was placed in the good ear, and not one of them could hear any of the tuning-forks or the monochord with the affected ear either by air- or bone conduction. The labyrinth, tested by syringing with cold water and by rotation, reacted normally. The lesion thus appears to have been confined to the cochlear apparatus I had radiograms taken (in Stenver's position) of the temporal bones of the mother and of five of her children, the inner ear could be clearly distinguished, but there was no apparent difference in the bony structure on either side No history could be obtained from Mrs. D. of any specific infection, and the Wassermann reaction of one of the deaf members of the family was negative An interesting feature, which had been observed by the mother and was fairly obvious, was that those members of the family who had features like Mrs. D. were deaf in one ear, whereas those who had features like the father had perfect hearing.

It is well known that mumps is a common cause of unilateral deafness; but, although apparently most of the children had had mumps when very young, the mother was sure that the deafness dated from birth I could not find any evidence of consanguinity in Mrs D's family. The fact that deafness affected the right ear in two of the family and the left ear in the mother and in the other two children appeared unusual I thought that this might have been related in some way to left-handedness but on careful inquiry found that this was not so.

Mrs D. gave me particulars of other members of the family. She had lost touch with some of them, but from what she could tell me I have prepared the accompanying genealogical table Mrs D also gave me some information which led me to investigate two of her relations who, unknown to her, had attended the ear, nose, and throat department of Edinburgh Royal Infirmary. Although I was not able to examine these two relations personally, I was able to obtain their case-notes

Mrs D had one other sister who was deaf in one ear, and her eldest sister had become deaf and dumb after measles Whether the latter also had a hereditary unilateral deafness I cannot say; but her deafness was of such a degree that she had to enter an institution for the deaf and dumb There she met her husband, who, according to Mrs. D, had lost his speech and hearing after a box on the ears and was the only deaf member of a family of ten There were three children from this union, two boys and a girl Both boys had perfect hearing, but the girl was deaf in one ear. She is now married and has two children, one of whom is deaf in one ear Of the two boys who had perfect hearing, the elder married and had three children and some years ago brought his second-born to the infirmary. I was thus able to obtain particulars of both father and son. The father had perfect hearing, but the son was a deaf mute The two other children were healthy The Wassermann reaction was negative in both father and son. This is the only case of congenital deaf-mutism which I have been able to trace



■ ● Male and female deaf in one ear.
▨ ⊘ ,, ,, ,, ,, and dumb

R, right ear deaf.
L, left ,, ,,
X, tested by investigator.

---

[1] Marschak, M Z Laryngol 1931, 21, 145

in the family, and it is interesting that the defect has been transmitted through a healthy father

Mrs D 's other sister, who was deaf in one ear, also married and had two children, both of whom had perfect hearing

It is beyond the scope of this paper to discuss the factors of mendelian inheritance, but it is curious that a hereditary defect should be confined to one of the paired organs of hearing, and that the defect should occasionally be transmitted to the opposite side Also, it is interesting that the only deaf mute in the family should be the grandchild of two deaf mutes and the child of a healthy father Thus, in three generations of the descendants of Mrs D 's father, who was deaf in one ear, there are alive at the present time nine persons with hereditary deafness

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF SURGERY

At a meeting of this section on Nov 22, with Mr V Zachary Cope presiding, an address on

Treatment of War Fractures by the Closed Method

was given by Dr Josep Trueta, late director of surgery at the General Hospital of Catalunya, Barcelona Treatment of the open fracture, he said, is not merely treatment of the bone but of the wound The bone should be considered as organic tissue reacting similarly to other soft tissues Treatment of open fractures had two objects to avoid or overcome infection, and to obtain the best possible reduction of the fragments together with the consolidation of the fractured part without deformity by immobilisation He counselled prudence in the use of sulphanilamide compounds, the dose should never exceed 6 or 7 grammes a day, and should be reduced as soon as it begins to produce beneficial effects No measures against infection, such as antisepsis of the wound or the use of sera, is employed today without first excising all damaged tissues especially those deprived of circulation Contrary to opinions held during the last war, he believed that the greatest danger of infection lies not in the bone but in the muscle The bone plays an almost passive rôle in infections, while dead muscle tissue is favourable soil for anaerobic infection and for that reason must be excised meticulously Simple hæmatomata in the intermuscular spaces are good culture media which should be followed up systematically Skin, on the other hand, provided it has a good blood-supply, should be preserved A factor now seen to be of importance is the time elapsing between the production of the wound and the removal of the devitalised tissues In the last war eight hours was considered to be the limit before infection of the wound occurred, but the limit is not exact, and Dr Trueta has seen hundreds of cases run an aseptic course where wounded patients have been operated on after eight hours provided they were but little contused On the other hand, in wounds from shrapnel, and especially those produced by aerial bombs infection takes place much earlier, even in less than four hours When operation is undertaken immediately, secondary shock commonly does not occur, nor do generalised infections develop If true shock is to be avoided, compound fractures with extensive wounds should be operated on within two hours, this is not often possible in military operations, but may be done in bombarded cities with hospitals close at hand

Among procedures aimed at sterilising the wound by physical methods open treatment has been most widely followed Braun only fixed the limb by a splint with the wound uncovered Dr Trueta's results with this technique have not been unfavourable but its use in deep wounds of the limbs is limited because retained secretions remain undrained under the slough Only in severe trauma of the lower limb, when there is doubt about the possibility of saving the limb, is it necessary to watch the state of nutrition of the tissues for two or three days, and in such cases it is advisable to employ open treatment after immobilising the limb correctly by continuous traction and a good splint such as Thomas's or Braun's Retention of discharge is one of the factors which favour the development of infection, especially when colonies of organisms exist in the depth of the wound In Dr Trueta's experience the best drainage is obtained with sterile absorbent gauze introduced into the tissue planes, sometimes counter-drainage is needed by rubber tube inserted through the plaster into the most dependent parts of the cavity

On the subject of immobilisation, Dr Trueta said that it is well recognised that movement increases the dissemination of infection in the body and the absorption of toxin from wounds, probably owing to interference with the local defence mechanism in the small capillaries and the lymphatic thrombi by which the wound is isolated from the general circulation Rigorous immobilisation is certainly one of the most effective means of preventing and combating infection This can only be obtained by enclosing the extremity under a rigid casing which will prevent even the slightest movement and yet allow a good circulation The only material supplying these requisites is plaster-of-paris Its disadvantage is that it prevents examination of the wound, but fortunately such examination is seldom necessary In the upper limb, if it had been properly applied, the closed method is invariably satisfactory, and gas gangrene and septicæmia are very rare In the lower limb the thigh and leg must be considered separately When operating on fractures of the leg it is necessary to examine carefully both the circulation in the foot and the local circulation in the wounded part, and especially to estimate the possibility of excising all devitalised tissue In the thigh the indications are the same, but here consideration of the local circulation in the tissues surrounding the wound is more important than the general circulation of the leg because the latter is more easy to assess In both cases if there is doubt about the vitality of the tissues that remain one must wait two or three days, keeping the patient in bed with the wound open and the leg fixed by continuous traction With this line of treatment it is possible to save many lives as well as limbs and to see gas gangrene progressively disappear from hospital

The only satisfactory method of obtaining reduction of fractures is by traction Reduction must be secured by the application of extension on the operating table Each region has its own special technique and this Dr Trueta described He went on to say that the plaster-of-paris should be put on under an anæsthetic whenever this is possible, profiting by the good reduction of the fragments which has been obtained by the continuous extension The patient should never be moved from the operating table in order to put on the plaster The plaster should be put directly on the skin without stockingette, only the anterior superior iliac spine, the os calcis, and the tendo Achillis being covered by a layer of cotton-wool The use of cotton-wool under the plaster makes the immobilisation of the soft tissues less effective After treatment the plaster cast should be left in position as long as the smell is not excessive and the plaster had not become soft and wet In 1073 patients treated at his clinic the removal of the plaster for a true clinical indication was necessary in only 0 75 per cent The immediate benefits of the plaster treatment are absence of pain, rapid disappearance of shock, elimination of sleepless nights and return of appetite Dr. Trueta is convinced that making a window in a plaster cast neutralises all the value of plaster treatment He does not use Vaseline, which diminishes absorption. If the plaster is correctly applied directly on the skin and with the limb in its correct position, displacement of fragments does not occur Sometimes, however, a better reduction may be obtained after ten or twelve days, when the danger of severe infection has passed, because the need for speed at the first operation has made it difficult to place the fragments in good position. This second reduction should be done under X-ray control and without urgency

In conclusion Dr Trueta mentioned that French surgeons have been amazed at the value of the method as evidenced by the results in the refugees who at a later stage retreated into France The closed method of treating compound fractures has in their eyes justified itself.

Dr A F D **Wall** said that in 1937 when there were hostilities in the neighbourhood of Shanghai he tried out the plaster immobilisation methods with the same successful results Not much gas gangrene was encountered, although the Yangtze delta has a heavily manured soil

Dr **Leonard Colebrook** asked whether hæmolytic streptococci were present in these wounds encased in plaster. He believed that in the war of 1914–18 the hæmolytic streptococcus was a much more important enemy than the gas-gangrene organism, and that 80 or 90 per cent of all the open wounds in the British base hospitals were in some degree infected by the streptococcus If the hæmolytic streptococcus is not present he thought it was the general experience that the wounds would take care of themselves, otherwise cellulitis and other troubles occur, and not infrequently death from septicæmia

Dr. C. A. R. **Schulenburg** referred to the smell caused by the saturation of the plaster with discharges from the wound This is a matter of considerable importance from the point of view of those who have to be near the patient Had Dr Trueta found any local measures capable of combating the smell?

Mr. G. **Gordon-Taylor** said that what Dr. Trueta had brought forward was novel and perhaps revolutionary. But methods of surgery are open to change, and certainly the illustrations he had shown were proof of the value of his methods—Mr. W. C **Gissane** mentioned the difficulty of holding the original reduction when changing the plaster and Lieut.-Colonel D C **Monro** asked the weight of plaster used by a surgical team in an average day.

Dr. **Trueta**, in reply, said that all types of streptococcus and staphylococcus were found in the cases at his clinic He believed that it was the method employed which prevented widespread infection There is a slight risk of local infection when the plaster was changed In the absence of clinical necessity, the first plaster is retained for about six weeks He agreed that the smell is very disagreeable In some cases yeast from the brewery was applied on the wound and this made the smell less pronounced. On a busy day in his clinic as much as 600 or 700 lb. of plaster was used

Mr **Zachary Cope** described Dr Trueta's paper as likely to revolutionise one of the most difficult problems which faced surgery, especially in war

REVIEWS AND NOTICES OF BOOKS

Sands of Time

By James Purves-Stewart, K.C M.G., M D Edin, F R C P. London: Hutchinson and Co 1939 Pp 350. 18s

Autobiography is the fashionable medical pastime, but it is a difficult art For the qualities of good autobiography—selection, truthfulness and self-criticism—though bywords in medical teaching are extraordinarily difficult to apply to one's own life. Sir James Purves-Stewart dispenses with self-criticism and tells us that his faults and failings are well known to his friends and need not be recounted. That may be true, but some readers will think it an unhappy remark in an autobiography There are, however, many things of interest in this book, student and hospital life in Edinburgh in the 90's, the London hospitals of the late Victorian days, medical practice in the Boer War and later Malta, Gallipoli and Salonika in, as the dust-cover calls it, the first great war He also describes journeys to America and more recently to Russia and Germany, and, if the paths are often familiar, he looked observantly and does not hesitate to say exactly what he thinks Sir James also has a memory for people and house-physicians, mess-mates, well-known doctors, actors and authors crowd upon us Some of the men he knew are brought to life with a vivid phrase or story, but others lie uncomfortably cold and dead. Thomas Hardy, for example, compels the single thought that it was difficult to believe that so reserved and gentle a man could once have written Tess of the D'Urbervilles and Jude the Obscure The author also deals with such subjects as euthanasia and co-education and he puts his case vigorously His views on dictatorship have been widely reported and he foresaw the certainty of the second great war. One of the best chapters tells the story of six days on Mount Athos The twilight gloom of its monasticism is not easily forgotten and the strange frugal meals, the holy reliques and tales of men who stood penance for years bring clearly back a cool and cruel world that had yet to hear the gentle, cynical voice of Geoffrey Chaucer. One point, however, Sir James as a true but exiled Scot should remember. Scotsmen no longer like to be called pawky. It savours too much of the despised kailyard.

War Wounds and Air-raid Casualties

Articles republished from the *British Medical Journal* London · H K. Lewis and Co. 1939. Pp 258 *10s. 6d.*

For those doctors (and there are many) who are preparing to undertake the treatment of war casualties without any previous war experience this will provide a useful outline. Each of the contributors is an authority and almost all the articles are good Some deserve special comment Mr Gordon Taylor's chapter on abdominal injuries is wise, practical and clear In discussing amputations Mr Max Page has passed on the valuable lessons learned through the follow-up by the Ministry of Pensions of some fifty thousand patients who suffered amputation in the last war A study of these late results has necessitated some changes in previously accepted ideas—for instance, it appears that many Syme stumps need reamputation within ten years Mr Page also emphasises the importance of close cooperation between the surgeon and the maker of artificial limbs Mr Geoffrey Jefferson's lucid account of the difficult subject of head wounds is a pleasure to read and few would oppose his plea for the treatment of these cases at special hospitals One of the most convincing articles is the one on war surgery in Spain by Mr Tudor Hart, and some of the points he makes are worth noting He says that primary suture of wounds should in general not be undertaken if the patient must be evacuated in the next few days because continuity of supervision is essential for safety He did not use Trueta's closed plaster method, but he acknowledges that it gave excellent results Lower limb fractures were treated on a Braun frame and skeletal traction was nearly always used

The surgical aspect of war casualties is not the only one dealt with in this symposium, for the book concludes with articles on psychology, gas warfare, the chemistry and physics of explosions and hospital organisation A chapter on the classification and immediate disposal of the injured would have been useful

Hale-White's Materia Medica

(24th ed) Revised by A H DOUTHWAITE, M D , F R C P , physician to Guy's Hospital London J and A Churchill 1939 Pp 550 12s 6d

THE two years since the last edition of this work appeared have seen many advances in therapeutics These are now incorporated and the endocrine section has been rewritten and augmented To make space for the additions much out-of-date information about the physical properties of crude drugs has been scrapped which further adds to the practical value of this essential book

Asthma

(2nd ed) By FRANK COKE, F R C S With collaboration of HARRY COKE, M R C S , hon physician, Charterhouse Rheumatism Clinic, London Bristol John Wright and Sons 1939 Pp 200 15s

ASTHMA is here considered as a symptom due to a great diversity of causes, and its classification is attempted on this basis In the main, three fundamental types are described type 1, the allergic or protein hypersensitive, type 2, the infective, and type 3, a mixed type, with an allergic plus an infective element, usually a staphylococcic postnasal infection, including aspirin-sensitive cases The author believes that full sensitisation to bacteria is an extremely rare cause of spontaneous asthma in man, and says that there is no clinical evidence that it occurs at all On the other hand toxins of bacterial origin may circulate in the blood or lymph, and on reaching special organs rich in histamine they may liberate that substance in quantities relative to their content, the two most important being the bronchial muscle and skin, and the staphylococcal inhabitants of the postnasal space are the most potent source of this histamine producing toxin He suggests a rather laborious series of bacterial examinations from every orifice, the organisms being then subjected to pathogen selective blood culture methods A differential serum sedimentation test is described, the figures being derived from the interaction of serum and a standard colloidal agent The test is carried out with unheated serum, heated serum and serum treated with ether and certain curves are plotted, certain curves being characteristic of the three types of asthma

The general outlines of treatment are clear and practical, and the whole work is concisely written, up to date, well printed and well indexed

Your Baby's First Year

By MARIE CARMICHAEL STOPES, D Sc , Ph D , F L S London Putnam 1939 Pp 283 5s.

THIS stimulating and sometimes provocative book is addressed to mothers of moderate means, and contains much useful advice Dr Stopes has no great belief in average babies—they vary, she thinks, as much as adults—so that though certain general rules of feeding may be laid down the individual infant is the best judge of his own requirements Broadly speaking, she thinks that almost all books on infant feeding recommend a diet far below the needs of the baby She urges the mother to breast-feed her baby, and assures her that she can do so In those rare cases where the mother's milk proves insufficient supplementary feeding may be resorted to, but premature weaning should be avoided Dr Stopes thinks the best milk for young children is goat's milk, but where this is unobtainable the cow's milk should be fresh and untreated by any form of heating or preservation She can find no excuse for pasteurised milk, and maintains that "anything which does not go honestly bad is not fit to eat" She has some wise things to say about the importance of not allowing an infant to have illnesses After the age of seven, if he has been well fed and cared for, he ought to be able to face the usual ailments of childhood with impunity, but up till then she urges parents to go all lengths to avoid contact with infection

Cure of Acute and Chronic Infections by Active Immunisation

By W M CROFTON, M D , late lecturer in special pathology at University College, Dublin London John Bale Medical Publications Ltd 1939 Pp 112 7s 6d

Dr Crofton claims to have recovered the causal bacterium of, among other diseases, diabetes, cancer, nephritis, epilepsy, the poxes and foot-and mouth disease He uses autogenous vaccines—often composed of white staphylococci and/or diphtheroids isolated from the patient's urine—for the treatment and cure of these and other diseases, notably the chronic scleroses His book contains many diatribes against orthodox bacteriology and bacteriologists

Heart Sounds in Normal and Pathological Conditions

By OSCAR ORIAS, M D , director of the Institute of Physiology and professor of physiology in the Faculty of Medical Sciences Cordoba , and EDUARDO BRAUN-MENENDEZ, M D , director of cardiological investigations in the institute London Humphrey Milford, Oxford University Press 1939 Pp 258 15s

AUSCULTATION admittedly has its limitations in investigating the heart sounds and graphic methods of analysing them help to train the ear to recognise the more subtle changes, even though the tracings themselves have but a limited value in clinical medicine By studying the results of improved methods for reproducing heart sounds it should be possible for the clinician to educate his ear to analyse more accurately sounds of short duration repeated at frequent intervals (e g, the mitral diastolic murmur in a rapidly beating heart) and even to hear sounds with his stethoscope which were inaudible before. To this end Dr Orias and Dr. Braun-Menendez have contributed a valuable groundwork in this monograph, which summarises the results of a long study of graphic records.

The first part of the book deals with the physical and physiological principles involved in the different methods of auscultation and phonocardiography, the second with the physiological heart sounds, including the auricular and third heart sound, and the third with the heart sounds in disease. There are many well-reproduced figures from the authors' original papers, and the translator, Mr. R. A. Gregory, has given English readers a clear and accurate text.

Clinical Diagnosis of Swellings

By C E Corrigan, M D, F R C.S. lecturer on surgery, University of Manitoba; assistant surgeon and director of the outpatient department, St Boniface Hospital. London: Baillière, Tindall and Cox. 1939. Pp 313. 18s.

This is a collection of notes such as might be compiled by any senior student reading for his final examination. It contains nothing new, and some of its statements are open to question. Mr. Corrigan says that only an inflamed gall-bladder has a firm consistency, but a distended gall-bladder is always hard. A gallstone of the size depicted in fig. 87 could never be detected by palpation, even with one finger, and particularly if the gall-bladder was distended. It is not the usual experience to be able to demonstrate the cord in a meningomyelocele by simple transillumination; the injection of oxygen and radiography are generally necessary. The picture of a carcinoma of the rectum invading the sacrum is misleading, for permeation of the bone is prevented until the very latest stages by the barrier of the pelvic fascia. On the other hand, the reader can always gather what the author means; the book is entertaining reading, and the illustrations, though rather crude, unmistakably depict the points the author wants to bring out.

Hydrophthalmia or Congenital Glaucoma

Its Causes, Treatment and Outlook. By J. Ringland Anderson, M.C, M.D. Melb, F.R.C S E., F.R.A C S, D O.M S., ophthalmic surgeon to the Alfred Hospital, Melbourne. Cambridge: University Press. 1939. Pp. 377. 25s.

This is a comprehensive and authoritative treatise on congenital glaucoma, of interest alike to the pathologist, the physiologist and the surgeon. There are chapters on ætiology, differential diagnosis, embryology, pathology, pathogenesis, prognosis and treatment. The illustrations and microphotographs deserve special mention. A complete bibliography is given at the end of each chapter.

NEW INVENTIONS

AN INFUSION NEEDLE WITH BULB-TIPPED STYLET

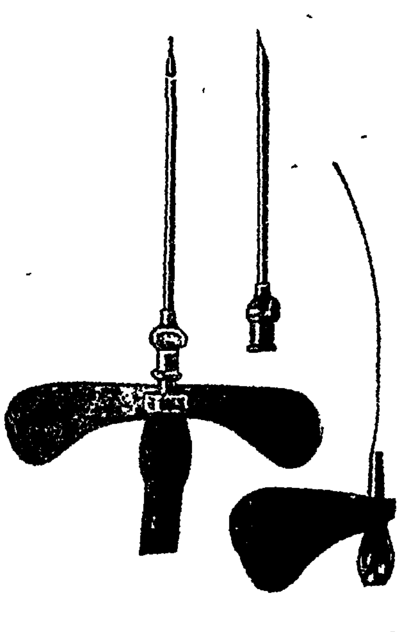
Since the intravenous administration of blood, glucose, saline, and other fluids by continuous drip is coming more and more into use, we have constructed a needle which makes dissection of a vein unnecessary and can be left in the vein for two days, if necessary, without piercing or damaging the opposite wall of the vessel.

The needle is stainless, polished inside, 65 mm. long, has a bore of 1.1 mm., and fits on a common Record nozzle. To the lower aspect of the nozzle are attached wings made of soft pliable metal (annealed copper). To the lowest point of the inner circumference of the nozzle a long thin stylet is fixed. The stylet must be welded into the wall of the nozzle for if it is only soldered it is liable to break off. The stylet is 0.5 mm in diameter, made of resilient stainless steel, and curved downwards; at its end it has a small bulb, 0.9 mm in diameter. Stylet and bulb are polished.

When the needle is fitted on the nozzle the stylet is pushed down the lumen of the needle, and the bulb protrudes downwards over the needle point with some force. One can convince oneself by stroking the needle point over the back of the hand, that the point has been rendered innocuous. The thin stylet occupies only a small part of the lumen of the needle.

Directions for use.—The nozzle is attached to the tubing of the fluid reservoir, and all air is expelled. The loose needle is inserted into the vein by simple puncture. As soon as blood flows from the needle, the lacing of the upper arm is relaxed, the stylet is introduced through the needle against the blood flow, the nozzle is fitted into the needle, and the wings are bent down round the arm. The skin is washed with alcohol, and the tubing and needle are fixed with adhesive plaster, care being taken to leave the skin free where the needle is inserted.

We have never seen any clot in the needle and never met with a hæmatoma. In one very restless patient we saw the needle bulge under the skin during the patient's movements, without the vein being injured. During the insertion of the needle the arm is kept low to allow the lacing to be released safely. During the infusion the arm is raised on a pillow to avoid unnecessary rise of pressure within the vein and leaking of the needle.



Dissection of the vein and insertion of a tube or cannula under direct view are reserved for those cases in which venepuncture cannot be performed. Small trocars designed for the same purpose were not satisfactory; the needle can too easily be pushed through the opposite wall of the vein. The needle here described can be more easily handled if an erect wing is added to the nozzle. The infusion needle can be obtained from Frans van Halsema, 21 Zwanestraat, Groningen, Holland.

W. J. Kolff

University Hospital, Groningen, Holland

THE LANCET

LONDON SATURDAY, DECEMBER 2, 1939

CHILDREN IN WAR-TIME—AND AFTER

WE must wait to see what lessons have been learnt from that great social experiment which emptied so many town homes into the country during the early days of the war There is a danger that its lessons will be lost, and its results go unrecorded, unless some contemplative minds are already weighing the good with the evil which comes out of it For this reason we welcome Prof CHARLES MCNEIL s articles in the *Scotsman* of Nov 3 and 6 on child life in the war—and after He takes as his starting point the many unpleasant things about our city homes and the children who live in them which were brought to light by the evacuation The low standard of hygiene, the numbers of verminous children, the prevalence of dirty habits and destructive behaviour these may have been known to the medical profession and the public-health authorities, but they must have kept very quiet about them, for they came as an unpleasant shock to many rural and suburban hosts Let us hope that the initial disgust of these good people at the harvest of their small tooth combs was compensated by the wit and wisdom which they heard from the mouths of the gamins, and by the healthy glow which came into their faces after a few weeks in the country

The revelations of the evacuation scheme gave further proof of what the infantile death rates in parts of this country have shown for some time These are a reproach not only to our health authorities but to the whole medical profession They should now stimulate a combined effort to improve housing, education and medical and nursing supervision Professor MCNEIL's chief concern is to ask for an investigation and review of the machinery and policy which deal with the welfare of children, and to lay down some principles of reform The family doctor going in and out of the houses ought to be the most powerful agent in reform But the medical schools must first play their part in his training The family doctors themselves are eager for this The medical schools have other duties as well in training the medical staffs of health services, district nurses and health visitors to coöperate with the practitioners in the homes of the people It is now beyond argument that to give the student an understanding of health and disease in young children is one of the most complex and difficult tasks of clinical training Teachers of pædiatrics, absorbed as most of them are in their subject, have seemed unwilling to force their views But the time has come for the meek to possess the earth

To the deputation from the British Pædiatric Association that advocated the appointment of pædiatricians to assist general practitioners and public health authorities in reception areas the Minister of Health said he doubted whether evacuation could properly be made the occasion to set up a new service not available in peacetime There is no reason, however, why reforms in other directions should wait till the end of the war Some administrative device should now be found to make available for the medical schools a small portion of the two million pounds spent annually by local authorities on child welfare, for there are some teaching departments in children s diseases whose total annual budget is less than the salary of one child-welfare doctor An administrative act like this would indicate a desire to learn, a desire to coöperate and a desire to help Pædiatrics is not a minor special subject in clinical training as is so often imagined It comprises that whole body of knowledge of growth, health, hygiene and disease in childhood Without it there can be no understanding of the ills which beset the minds and bodies of men and women in later life How can a man be a family doctor without this knowledge? How can social schemes for child welfare be administered without this understanding? Here is an immediate field of fruitful coöperation between the Ministry which should foster health and those centres of research and teaching which should foster that knowledge and understanding through which health is to be attained, both during the war and after

SURGICAL SMELLS

RECENTLY in our columns Dr M LICHTENSTEIN discussed[1] the use of cod-liver oil for dressing septic wounds, reaching the conclusion that the oil has a definite bactericidal power which can be enhanced by previous irradiation His laboratory work confirms a remarkable series of clinical papers telling of the value of the oil in the local treatment of burns, ulcers, compound fractures, osteomyelitis and infected wounds He does not mention the drawback to this treatment—namely, that it offends the nose of everyone in the ward except perhaps the patient That is presumably because his own work has been done in the laboratory and not at the bedside The objection was not unfamiliar to Prof W LÖHR in his pioneer work at the Bürgerspital in Magdeburg where the casual visitor was assailed with an odour which can hardly be described in polite terms LÖHR admitted the drawback but regarded it as trivial compared with the material advantage to the patients, but although assiduous in his attention he did not have to live in the ward The same drawback applies in some degree to any of the methods in which septic wounds are immobilised in a plaster case At the Royal Society of Medicine last week Dr. Trueta agreed with his critics that the smell of retained secretions under such conditions is very disagreeable

---

[1] *Lancet* Nov 11, 1939 p 10[illegible]3

Smells in wards have hitherto been regarded as danger signals and the aim has been to remove the source of the smell rather than peddle with the smell itself, but this particular smell may have come to stay and should lead us to study measures to mitigate it. Activated charcoal has the curious property of absorbing certain smells—but its range is probably not large. More might be hoped for from an application of Trillat's work on aerosol sterilisation of the air, for if the smell cannot be treated at its point of origin it should be followed into the air and fought on its own ground Pulvertaft and his co-workers at the Westminster Hospital have shown [2] how effective aerosols may become against floating bacteria, and in this hand-to-hand combat the globules need hardly be larger than the germs Sodium hypochlorite in the astonishing dilution of 1 in 10 million of a 1 5 per cent solution, Pulvertaft tells us, may kill air-borne bacteria [3] Its action is by virtue of its nascent oxygen, the value of which is well recognised in the use of ozone to remove the smell of offensive cancers and colostomies and in the post-mortem room At the Westminster Hospital, for instance, ozone is produced for this purpose by sparking high-tension current through quartz di-electric and use is made of it also at the Cancer Hospital

While we must perhaps resign ourselves to the fact that for protective reasons the human nose has been made intensely sensitive to certain smells such as those of the indoles and scatoles, it is fortunate that none of the bodies with a devastating smell are very stable chemically—they have, *it seems electrically-asymmetrical molecules*—and they should readily succumb to oxidising agents Attack should not be too difficult if the odorous substance is diffused in the air as free molecules Here there seems a useful direction for further investigation There is good reason for an attempt to put the perception of smell on a quantitative basis, it should help us to detect any kind of unfriendly smell

VITAMIN K

From being a curiosity having some obscure function connected with blood clotting in baby chicks, vitamin K has rapidly emerged as a crystalline compound or compounds whose structure is approximately known and has acquired a place in clinical medicine This advance has followed a now almost classic course for vitamins. First comes the observation that animals on a deficient diet show some symptoms which fail to yield to therapy with any known vitamin The existence of a new dietary factor is thus recognised, and its chemical concentration goes hand in hand with the perfection of a biological technique for testing for it As soon as a rich concentrate has been obtained physical and chemical tests are devised, and isolation, identification and synthesis are already in sight. If the concentrate is non-toxic clinical tests can be started and humanity can begin to benefit To this last happy stage belong the papers by Dam and his colleagues, and by Kark and Lozner in this issue Dam is the undisputed beginner of the story. In 1934, in the biochemical laboratory of the University of Copenhagen, he observed the occurrence of hæmorrhages in baby chicks reared on artificial diets containing vitamins A and D and the vitamin-B complex, but otherwise deficient The symptoms resembled those of scurvy, but did not respond to treatment with vitamin C. Here, therefore seemed to be a deficiency of an unknown dietary factor.[1] In the next three years the subject was worked at in Copenhagen by Dam and his co-workers, and in the University of California by Almquist.

A curative and preventive effect was first identified with cereal grains; then the curative substance was found to be fat-soluble and to be present in many other foodstuffs, including alfalfa meal (dried powdered lucerne). The name vitamin K was suggested [2] and has been retained Dam's colleague Schønheyder detected that the hæmorrhagic tendency was due to a prolonged clotting time,[3] associated with a lack of prothrombin in the blood [4] A method of measuring the clotting time, as depending on the concentration of prothrombin—the so-called prothrombin time—was devised with baby chicks. Like all biological methods this was at first rough, but was perfected by the cooperation of many workers till it was rapid and accurate. For measuring vitamin-K potency an animal unit of biological response was unfortunately established, it was called the *Dam unit, and its use still persists, though it will* inevitably have to disappear as all such units must

Dried alfalfa proved a suitable material from which to begin a chemical concentration of the vitamin, and both Dam and Almquist set to work on it [5] This year the chemistry of vitamin K has greatly progressed, Dam and Karrer and their colleagues have been associated in the chemical investigation, and analyses and physical measurements have been published.[6] A group working with Doisy [7] reported the isolation from alfalfa of a vitamin K_1, resembling in properties the vitamin isolated by Dam and Karrer, and a vitamin K_2 which was obtained from putrefied fish meal.

---

[2] *Lancet*, 1939, 1, 443, 457

[3] Observation to appear in the *Journal of Hygiene*.

---

[1] Dam, H., *Nature*, 1934, 133, 909; Dam and Schønheyder, F, *Biochem J.* 1934, 28, 1355

[2] Dam, *Nature*, 1935, 135, 652; *Biochem. J* 1935, 29, 1273

[3] Schønheyder, *Nature*, 1935, 135, 653

[4] Dam, Schønheyder, and Tage Hansen, E, *Biochem J* 1936, 30, 1075.

[5] Almquist, H. J., *J. Biol Chem* 1936, 114, 241; *Ibid*, 115, 589, *Ibid*, 1937, 117, 517; Dam and Lewis, L, *Biochem J.* 1937, 31, 17

[6] Dam Geiger, A, Glavind J, Karrer, P Karrer, W, Rothschild, E, and Salomon, H, *Helv. chim. Acta*, 1939, 22, 310

[7] McKee, R W, Binkley, S B, MacCorquodale D W., Thayer, S A, and Doisy, E A, *J. Amer chem. Soc.* 1939, 61, 1295

Almquist and Klose[8] have found that pure synthetic phthiocol (2-methyl-3 hydroxy-1 4-naphthoquinone) has the same antihæmorrhagic activity as vitamin K Fernholz and Ansbacher[9] suggest that the activity of phthiocol is due to contamination with a related substance, and Kuhn and co-workers[10] report similar activity in varying doses of a number of other naphthoquinone derivatives It seems probable that, as with vitamin E, various substitutions can be made within the molecule which somewhat alter the activity without removing it altogether, the specificity within a narrow range of variation in composition is not hard and fast

When the concentration of the active substance had reached a certain point, the door began to open to clinical and physiological investigations A number of other workers came into the field, though Dam was throughout a pioneer It was noticed that chicks with prolonged clotting time were also anæmic,[11] and that there was a loss of coagulability in the blood of rats with a bile fistula[12] Last year Dam and Glavind[13] published in these columns a series of observations on human cases They found that the clotting power of the blood was normal in cases of thrombopenia, aplastic anæmia and hæmophilia, but that it was impaired in 5 out of 7 cases of obstructive jaundice, when 3 of these cases were given intramuscular injections of vitamin K the clotting time became normal in a few days Further research along these lines with dogs showed that if a biliary fistula was established the animals developed a prolonged clotting time and a tendency to spontaneous bleeding even if the diet *contained* vitamin K[14] It gradually became clear that vitamin K was a fat soluble vitamin which could not be absorbed from the intestine in the absence of bile acids, and that symptoms of deficiency might arise either from this cause *or* through a lack of vitamin K in the diet The effect of giving vitamin K and bile acids by mouth in human cases of biliary fistula and obstructive jaundice to prevent postoperative bleeding was found very satisfactory[15] A deficiency is also reported to arise in certain cases of intestinal disorder where there is insufficient normal mucous membrane for absorption[16] A different kind of case in which prolonged clotting time due to deficiency of prothrombin is present is described by Dam, Tage-Hansen and Plum on p 1157 These are cases of jaundice, anæmia and hæmorrhagic tendency in the newly born Waddell and Guerry[17] have found the clotting time to be prolonged in babies with a tendency to spontaneous hæmorrhage, and even in normal newborn babies, and that the clotting time is shortened by treatment with vitamin K In Dam's cases the clotting time was sometimes enormously prolonged, but it usually tended to return to normal spontaneously if the child survived, one child was treated with vitamin K and bile salts with a rapid improvement

A simple deficiency of vitamin K, due to lack of the vitamin in the diet, has not seemed at all likely to occur in normal human beings The paper by Kark and Lozner which we publish this week is therefore particularly interesting It is true that the four patients described cannot be called normal, for they lived alone and provided themselves with such a scanty diet that besides a prolonged prothrombin time, three developed scurvy and one pellagra Jaundice was not present and therapy with vitamin K, without bile salts, sufficed to restore their clotting time to normal These encouraging clinical results may yet be further extended

SIR NORMAN WALKER'S RETIRAL

The General Medical Council has had a succession of remarkable presidents, liberal-minded men, men ready for reform and, what is more, able to see that reform is carried out Of this the names of Brodie, Paget, Acland, Quain, Turner and MacAlister are sufficient evidence MacAlister was president for 27 years, and for 20 of these he had at his side a devoted friend, aiding him, encouraging him and keeping him going Norman Walker thus showed himself in the first instance as a man who is capable of leading but is willing to follow His own period of presidency has not been so long, but he is the most experienced and best qualified man for the job who ever came to the presidential chair He may, in fact, be regarded as the embodiment of the General Medical Council, its traditions, its nature and its character His service goes back over 30 years as direct representative for Scotland What brought him to the council chamber was a chance contact in a railway carriage between Dr George Gibson and one of the sheriffs of Lanarkshire who was troubled that medicines including poisons were then being sold by the employees of doctors Like MacAlister he sat in the council for two years before he spoke But after that he served on every committee of the council, and he is the only president who has carried the flag across the world to the East On the examination committee he visited every licensing body except one He paid an official visit to the United States in 1920 and to Canada in 1927 In India he was associated with Sir Richard Needham in bringing the teaching of obstetrics again up to the registrable level His retirement from the chair does not mean his loss from the council chamber or deprive him of what has been the great interest of his life

---

[8] Almquist H J and Klose A A *Ibid* p 1011

[9] Fernholz E, and Ansbacher S *Science*, 1939 90, 215

[10] Kuhn R, Wallenfels K, Weygand F, Moll T, and Hepding L, *Naturwissenschaften* 1939 27 518

[11] Thayer S A, McKee R W, MacCorquodale D W, and Doisy, E A *Proc Soc exp Biol N Y* 1937, 37, 417

[12] Greaves J D, and Schmidt C L A, *Ibid* p 43

[13] Dam and Glavind *Lancet* 1938 1, 720

[14] Smith H P, Warner E D, Brinkhous K M and Seegers, W H, *J exp Med* 1938, 67, 911

[15] Stewart J D *Ann Surg* 1939 109, 588, Scanlon, G H, Brinkhous, Warner, Smith, and Flynn J E, *J Amer med Ass* 1939 112 1898, Illingworth C F W, *Lancet* 1939 1 1031

[16] Clark R L, Dixon C F, Butt, H R, and Snell, A M, *Proc Mayo Clin* 1939 14, 407

[17] Waddell, W W, Guerry D, *J Amer med Ass* 1939 112 2259

ANNOTATIONS

THAT'S ENGLAND'S HEALTH—THAT WAS

Sir Arthur McNalty tells us that his report[1] was written and in the press before war was declared. It is good to have so comprehensive an account of the state of the public health in what must now be regarded as the last complete year of an epoch. Sir Arthur considers whether progress is a law of nature and an inevitable process. He seems a little doubtful about it, and puts on his opening page the sinister title of Oswald Spengler's "The Decline of the West," but he is sure that whatever else is not progress the steady improvement from decade to decade in the nation's vital statistics show at least that our health services are not ineffective. He compares mankind to Lewis Carroll's "Alice" in the grip of the Red Queen, moving faster and faster but often getting nowhere. For a generation born in a more leisured age the transition has been too abrupt, and he is sure that state medicine must pay increased attention to the prevention and treatment of nervous fatigue which is, he remarks, a social and economic as well as a medical problem. And he cannot forbear a bitter word about the perversion of modern scientific discoveries to destructive aims. But the chapter is not so closed that it should not attract the closest attention in detail: the record of the state of the public health in England and Wales in 1938 will remain a standard or measuring rule of continuing sanity if not of progress for years ahead. We should keep firmly in our minds a birth-rate which had ceased to fall (15·1 compared with 14·9 in the previous year), a crude death-rate of 11·6 compared with 12·4 in the previous year, and be it noted that only 26·5 per cent. of these deaths occurred under the age of 50; an infant mortality-rate of 53, the lowest rate ever recorded, and a sum-total of infectious disease, excluding measles, several thousands lower than in the previous year. Apart from the persistence of diphtheria as the principal killing disease among children of school age, this is a record which contains a good deal of encouragement. The rapid fall in the mortality from tuberculosis was again resumed in 1938 after a slight set-back; there was an acceleration in the rate of decline of mortality in young adults, thus allaying a fear felt by tuberculosis workers for many years. Gonorrhœa, that most refractory of all human ills, shows signs of decline with the help of the sulphonamide group of remedies. These things may only be pointers, but they mark the direction in which the stream of public-health progress was flowing before the storm began.

PRECISION OF BIOLOGICAL ASSAYS

That type of biological assay which is based upon a quantal or "all-or-none" response such as the death of the test-animal has received considerable attention from statisticians. Methods of dealing with graded response assays on the other hand have not been as fully investigated as they deserve, and the consideration given to them by Bliss and Marks[2] is particularly welcome. Although the assay of insulin by the cross-over rabbit test is taken throughout as an example, the methods discussed are of general application. In their first paper, statistical methods are given for increasing the precision with which dose-response curves may be determined. By computing the results derived from the use of balanced randomised experimental designs in the analysis of variance, one or more sources of potential variation can be segregated. Unbiased results may be obtained by this method, and the factors segregated can be excluded from the estimate of experimental error. By the analysis of covariance, arbitrary adjustments for such factors as the initial levels from which responses are measured may be replaced by corrections computed directly from the data at hand, and the experimental error further reduced. When doses are spaced equally on a logarithmic scale, it is easy to determine whether the response is a rectilinear function of the logarithm of the dose, and the use of orthogonal polynomial coefficients leads directly to a determination of the best-fitting line.

Their second paper extends the arguments of the first to the determination of relative potencies. Methods are described for determining the difference *in response to two materials* by the use of factorial coefficients, which are based on the polynomial analysis of a dose-response curve as already described for the responses to a single drug. Divergences in slope between the responses to two materials or departures from a straight line relationship between dose and response may be detected, and the internal consistency of an assay may be tested in a number of ways. These analyses may be of great help in selecting test animals for future work, and will in many cases lead to a substantial reduction in the experimental error.

It cannot be denied that some of Bliss and Marks's methods have a formidable appearance, and that full analyses of many assays might make considerable demands on an experimenter's time. However, they do represent a valuable advance in technique and accuracy, the worker intent on the greatest possible amount of information from his results will find it well worth while to study them, both when designing his tests and treating his results.

DANGERS OF GAS AND OXYGEN

Few anæsthetists are on the look-out for trouble once the patient who has been operated on under gas and oxygen has safely left the table. But Prof. Cyril B. Courville[1] maintains that there may be a variety of remote effects due to damage to the central nervous system by insufficient oxygenation following phenomena so slight as almost to pass unnoticed. He gives details of twenty-six cases. Six of these may be discounted, for in these patients there were intercurrent disorders serious enough to account for their disabilities without incriminating the anæsthetic. The remaining twenty are highly instructive. Professor Courville clearly demonstrates the validity of what he calls "delayed asphyxial death"; in fact, sudden death due to gas and oxygen hardly ever occurs. The delayed fatalities sometimes follow only the briefest periods of obvious oxygen-lack during the administration. The damage is not ascribed to any specific toxic action of nitrous oxide but purely to cellular anoxia, and that this is the cause of the symptoms Courville proves by histological examination of the cerebral tissues concerned. He shows that the condition is identical with that produced by experimental simple anoxia, and by carbon-monoxide poisoning Moreover, in the brains of those who have died after nitrous oxide anæsthesia the typical findings of excessive narcosis—destruction limited to the nerve cells and petechial hæmorrhages—are absent If Professor Courville has proved his case, and he is uncomfortably convincing, anæsthetists must change some of their views on gas and oxygen

---

[1] Annual report of the Chief Medical Officer of the Ministry of Health for the year 1938. London: H.M. Stationery Office. 1939. Pp. 230. 3s. 6d.

[2] Bliss, C. I., and Marks, H. P., *Quart. J. Pharm.* 1939, 12, 82 and 182.

[1] Untoward Effects of Nitrous Oxide Anesthesia. By Cyril B. Courville, M.D., professor of neurology and psychiatry, College of Medical Evangelists, Los Angeles. Mountain View, California: Pacific Press Publishing Association. 1939. *Pp.* 174. $4.75.

REOPENING OF KENSINGTON RED CROSS CLINIC

DURING the last war the Kensington division of the Red Cross opened a clinic, now at 15, Holland Park Gardens, W 14, for the treatment of wounded soldiers which was later transferred to the Ministry of Pensions When the clinic was no longer needed for this purpose, the authorities of the division realising that if the work they had been doing was of value to the war pensioner it would be of no less value to the civilian, decided to carry it on for the benefit of those who, though not able to afford physical treatment from private sources, could pay a substantial amount towards the cost The fees received from patients in fact covered four fifths of the total cost of the clinic, the deficit being made up from the funds of the division By keeping open until nine o'clock at night the clinic made it possible for people to receive treatment without giving up their work Starting in 1919 with a staff of one medical officer, two masseuses and an almoner, the clinic proved so popular that when this war broke out there were four medical officers, a sister in charge, and four full-time and five part-time masseuses The other activities of the division then made it necessary to take over the whole building for a time, and the calling up of most of the staff made it impossible for the clinic to carry on However, it was soon decided to re open it and for the last fortnight it has been working every day from 9 A M to 5 P M Already over fifty patients have reported for treatment and new patients are arriving at the rate of roughly twenty a week Every patient receives the same attention and consideration as he would in a private institution, consultation and treatment times being by appointment There are no facilities for baths at the clinic, but all other usual forms of physical treatment are available Patients are only received on a doctor's recommendation, and must be prepared to pay a minimum of 3s for each treatment Those who can afford to pay for treatment privately are not accepted

HEAD INJURIES

IN 1901 Kocher described four classical stages of brain compression, basing his description on clinical observations *First*, there is the stage of accommodation where the expanding agent in the skull displaces cerebrospinal fluid from the cranial vault The cerebral veins and capillaries are pressed upon but the systemic circulation is unaffected Headaches and drowsiness are the chief symptoms and there is slight fullness of the retinal vessels The treatment is expectant and the prognosis good The *second* stage is one of early manifest symptoms when the increasing tension empties the capillaries The anoxæmia of the bulb reflexly elicits a rise in blood pressure and bradycardia The drowsiness passes into delirium or excitement The prognosis is again good with expectant treatment In the *third* stage the manifest symptoms advance as the compressing force increases and capillary anæmia and arteriolar stasis become severe The medullary response produces a high blood pressure characterised by irregular fluctuations, and the pulse rate falls considerably Respiration is erratic and often periodic, papillœdema is present and the reflexes are abolished Either deep coma or excitability may exist The prognosis is grave and surgical intervention is necessary In the *fourth* stage the bulbar centres become exhausted as the intracranial pressure increases The blood-pressure drops and the pulse-rate quickens and becomes irregular The pupils dilate and become fixed Coma is invariable and steadily deepens The prognosis is hopeless

Following this lead, Cushing between 1901 and 1903 published a series of papers on his experimental observations on animals He demonstrated that a progressive increase in the intracranial tension produces a progressive rise of blood-pressure, and he held that the blood-pressure tries to find a level slightly above that of the pressure exerted against the medulla As a corollary he maintained that a high intracranial tension in man should be relieved by a decompression Thus cerebral compression came to be regarded as an essential factor in any cerebral injury, and alterations in blood pressure and pulse-rate were considered reliable guides to the magnitude of the intracranial tension and therefore to treatment Although this conception may be true in certain cases, it does not apply to many more Browder and Meyers,[1] in cases of cerebral injury, have found that the intracranial pressure rarely even remotely approaches that needed to produce an alteration in blood pressure or pulse-rate in animals, and that the symptoms and signs thought to be indicative of Kocher's third stage often exist with an intracranial tension that is actually subnormal They have also studied the effect of applying pressure to large defects in the skull in a number of patients. They were able to increase the intracranial pressure until it reached and even exceeded the diastolic blood pressure without producing any clinically significant alterations in blood-pressure, pulse-rate, respiratory rate or mental state They obtained the same results when they raised the intracranial pressure by injecting saline solution into the ventricles Excepting the more clearly demarcated syndromes associated with sub- or extra dural hæmorrhage, the constitutional, neurological and psychological condition of patients suffering from severe trauma to the brain cannot then be attributed to raising of the intracranial tension, and a decompression is therefore rarely required

Weed and McKibben[2] showed that the intracranial pressure of a normal animal could be reduced by the intravenous injection of hypertonic solutions This was enthusiastically applied by clinicians to a number of unrelated conditions, but their ardour was cooled by some untoward reactions Browder[3] then showed that in some patients with brain injuries the intracranial pressure was reduced by this measure, as expected, but that in 60 to 90 minutes there was a secondary rise to an even higher level In other patients the pressure rose and stayed up, and in one severely injured patient the injection was rapidly followed by death Others have since confirmed that the effect of intravenous hypertonic solutions on the cerebrospinal fluid pressure is unpredictable from case to case and even in the same patient at different times Browder and Myers conclude that in cases of trauma to the brain substance vigorous therapeutic measures to reduce the intracranial pressure are not usually justified, and may even lead to catastrophe They advise encephalography and ventriculography to help in the diagnosis, and recommend the following treatment when surgical intervention has been decided against.

---

[1] Browder J and Meyers R *Ann Surg* September, 1939, p 3.7

[2] Weed L H, and McKibben P S *Amer J Physiol* 1919 48 512

[3] Browder, J *Amer, J Surg* 1930, 6, 1213

1. Moderate Fowler position to assist the free return of blood from the head The patient should be turned on the side to allow saliva to drain out of the corner of the mouth, and should often be rolled over to avoid hypostatic pulmonary congestion.

2 Restlessness should be controlled by sedatives, especially chloral and bromides.

3. Moderate restraint may be necessary to prevent further injury, and all bony prominences must be padded.

4 The body temperature must be kept below 102° F. Tepid sponging is the most useful measure here, but if the temperature still rises cold water instilled into the colon, one or two litres at a time, can be tried.

5. The fluid balance of the body must be maintained. If the patient is not responsive, a nasal catheter should be passed, through which nourishing fluids and saline purges can be administered.

These conservative measures can be carried on indefinitely—in one case they were necessary for five weeks before the patient recovered.

PATHOLOGICAL EFFECTS OF VASOPRESSIN

OUR knowledge of the functions of the posterior pituitary is still incomplete. While recent work has plainly implicated the antidiuretic fraction in the physiological control of water metabolism, the pressor activity remains of uncertain importance; yet the two activities have never been obtained in separate fractions The classic proofs for the endocrine function of a gland are also difficult to apply to the posterior pituitary owing to its dependence on nerve control, though the effects of overdosage of vasopressin may give some indication of the results of a pathological hyperfunction of the gland itself.

Dodds and his colleagues[1] demonstrated the production of gastric ulcers in rabbits and other animals following the injection of large quantities of vasopressin They were able to demonstrate[2] that the action is due to the pressor effect of the extract which diminishes the visceral blood-flow and leads to the inhibition of gastric and pancreatic secretion The ulcers are caused by the action of the acid stomach contents on the ischæmic mucosa, thus explaining the fact that they are most easily produced in the rabbit whose stomach is normally never empty They also demonstrated[3] the production of a macrocytic anæmia in rabbits by the same means, though the cause of this is still doubtful These findings did not at first seem of great practical importance owing to the very large doses of vasopressin required, but Idris Jones[4] has since described a case with hypochromic anæmia, hypertension, decreased glucose tolerance and achlorhydria which he suggests was an instance of posterior pituitary hyperfunction Noble, Rinderknecht, and Williams[5] were able to demonstrate large amounts of pressor and antidiuretic activity in this patient's urine, the excretion of which ceased at the same time as the symptoms Another important effect of vasopressin overdosage is the kidney lesions described by Byrom[6] and Liu and Noble[7] These are of more immediate clinical interest since they are suggestive of those found in toxæmias of pregnancy. The large quantities again necessary to produce the lesions experimentally do not rule out the connexion since Byrom[8] found that œstrone or chorionic gonadotrophin will sensitise the rat to the toxic effects of vasopressin. These facts offer some explanation of the onset of the disease during pregnancy. The water-retention and hypertension found in toxæmia of pregnancy had in any case suggested to earlier authors that the disorder was caused by posterior pituitary hyperfunction and there have been claims that pressor and antidiuretic activity has been found in the blood of such patients. These claims have, however, not been supported. The latest is that of Teel and Reid[9] who find antidiuretic activity in the urine of pregnant women suffering from toxæmia The quantitative basis of these experiments is open to objection owing to the recent demonstration[10] that blood and urine extracts are capable of augmenting the antidiuretic action of vasopressin by diminishing its rate of absorption These facts, which have been ably summarised by Liu,[11] all point to the conclusion that the experimental effects produced by vasopressin overdosage do simulate clinical conditions

A HOME-MADE TOMOSCOPE

THOUGH it is sad that yet another term has been introduced into the nomenclature of sectional radiography, yet the apparatus described by Jones and Bradley-Bowron[12] in India and made to their own specification for Rs 50 deserves attention In their "tomoscope" they have dispensed altogether with rotation of the tube and have adopted the original method of Vallebona, by which the patient is placed on a chair which rotates during the actual exposure They have made use of two vertical axles (Ford front-wheel axles) set in a wooden solid base, about 16 in. apart A chair is firmly fixed to the anterior axle The chair seat with its back is set on two sliding bars mounted on a rotating base and there is a pin arrangement to lock the seat firmly at any desired position relative to the fixed point—the axle, which is the centre of the focal plane On the right side of the chair base is a scale showing in centimetres points in front of or behind the focal plane, which works in conjunction with a pointer on the sliding seat, and a corresponding scale on the chair back readily permits calculations of the focal plane in relation to the chest of the patient sitting in the chair On the rear axle is mounted a wooden frame to which the casette holder is fixed and which can be adjusted to the height of the patient. During the exposure the casette rotates in such a way that it is always parallel to the focal plane of the chair. A connecting bar from the chair base to the casette stand insures equal and simultaneous rotation of the two parts The X-ray tube is set in front of the patient at a distance of about 4 feet and the patient is rotated so that his face is at an angle of 45° to the tube On release of the catch the patient and the casette rotate towards the X-ray tube by means of a series of springs that are put under tension by the rotation So neatly has the apparatus been contrived that the exposure takes

---

1. Dodds, E C, Noble R L, and Smith E R, *Lancet*, 1934, 2, 918.
2 Cutting, W C Dodds E C, Noble R L, and Williams, P C, *Proc R Soc* B 1937, 123, 27
3 Dodds E C, and Noble R L, *Nature*, 1935, 135, 788
4 Jones, E. I *Lancet*, 1938, 1 11
5 Noble, R L, Rinderknecht, H, and Williams, P C, *Ibid*, p 13
6. Byrom, F B, *J Path Bact*. 1937, 45 1.
7 Liu S H, and Noble, R. L, *J. Physiol* 1938, 93, 13P
8 Byrom, F. B, *Lancet*, 1938, 1, 129
9 Teel H M, and Reid, D E *Endocrinology*, 1939, 24, 297.
10. Noble, R. L., Rinderknecht, H, and Williams, P. C, *J. Physiol* 1939, 96, 293
11 Liu, S H, *Chin. Med J* 1939, 55, 448
12. Jones, W G, and Bradley-Bowron, E W, *Ind med J.* October, 1939, p 618

approximately ¾ to 1 second—a time which has proved satisfactory in most types of apparatus used for tomography. At 100 mA the kVp is about 10 volts more than for the ordinary X-ray exposure at the same distance. The merit of this machine lies in its originality of design rather than its low cost, for it is difficult to believe that such an apparatus could be manufactured commercially for Rs 50. The tomograms published show clearly that reasonably good sections of the chest can be taken with the apparatus. That tomography has spread to India is perhaps the greatest achievement of all.

SHORT STEPS TO A LIFE TABLE

THE number of those who will survive to a given age, the probability of a person dying between one age and another, and the average length of life in a community are all clear and useful modes of expression of mortality-rates. They enable the public-health worker to make striking comparisons between the mortality experiences of different epochs and different places. Any quick but accurate method of constructing those features of a life table is therefore welcome. One such method was put forward by E. C. Snow in 1920[1] and has been shown to give satisfactory results with more recent death-rates.[2] Another means is developed and illustrated in a recent paper by Lowell J. Reed and Margaret Merrell.[3] Using American mortality figures they have constructed equations by which the required probabilities of dying—the basic element of the life table—can be calculated directly from the known mortality-rates for different age-groups. But to ease still further the path of the medical officer they have constructed simple tables which enable him to dispense altogether with forbidding-looking equations. Knowing his death-rate at, say, the ages 20–24, he can read off the probability of survivors at age 20 dying before age 25. A second table enables him to deal similarly with death-rates for ten-yearly intervals of life, and others with the rates prevailing in infancy and the early years of childhood. The authors wisely give a completely worked example, based upon the mortality of white males in Connecticut in 1929–31, which those whose arithmetical equipment is stronger than their algebraical should have no difficulty in following. Comparison of the results given by this short method with those derived by the complete but long process gives an excellent agreement. A similar comparison based upon English mortality-rates would be of interest and an instructive task for those who are moved to adopt this method for the construction of life tables for the area in which they work.

HOUSING POLICY

No single social problem has occupied the public mind so extensively and so continuously during the last twenty years as housing has done. After the end of the last great war public opinion became aware that the conditions under which the working classes were, in the main, compelled to live were intolerably bad. By degrees this state of affairs came to be recognised not only as a danger to health and to security but also as a matter affecting the public conscience. It is a rather pitiful coincidence that the publication of a conspectus[4] of the housing effort of eight European countries, the United States of America and Canada should synchronise with the outbreak of a new European war. This study, the largest individual section of which is devoted to the United Kingdom, is admirably compiled by Mr. M. B. Helger, of the Swedish Social Board. Although highly condensed the matter is clear and such statistics as are given are set out in a readable way. In an introductory chapter Mr. Helger deals with the development of the housing problem, the shortage of housing, questions connected with standards of housing and housing finance; the sections which follow deal with each country individually. All the familiar factors and difficulties are discussed and there is much useful information on slum clearance, overcrowding, house-building private and municipal, rates of interest, cost of construction and rent restriction. In the chapter on the United Kingdom the sequence of acts of Parliament is brought under review and the varying provisions of each in relation to subsidy, powers of local authorities, compensation, compulsory purchase and clearance are described in a way which is of value for reference. Comparison of individual countries shows many factors of the problem to be common to all—e.g., the number of households increasing more rapidly than the populations, the failure of policy based on hopes of "filtering up," reluctance of families to leave slum conditions even when better accommodation is available within their means, and the fundamental difficulty of providing housing of a proper standard at a rent adapted to the income of the average workman. Rural housing has a section to itself in each chapter. It emerges clearly that cheap money is one of the conditions essential to a successful working-class housing policy; even in times of cheap money both public ownership and some degree of subsidisation will continue to be necessary unless some way can be devised to secure that the houses can be usefully placed where site value is reasonably low.

WATCH YOUR PRESCRIBING

AFTER three months of war it is not surprising that some of the commonly prescribed drugs have become scarce. Among these are ergot of rye and belladonna root, and it is difficult to see how the shortage of these can be relieved. Poland is no longer an available source of ergot, Russia is conserving her production for her own use and Spain seems to have no stocks for export. The only other producing country of any importance is Portugal and there this year's crop was a failure and little remains over from the previous seasons. The consequence is that the price of ergot in the London market is four times the already high figure quoted at the outbreak of war and about eight times what was regarded as normal in quite recent years. Belladonna root has almost disappeared from the drug market for the time being; the chief source of supply was those parts of Central Europe which are under German influence. Stocks of most vegetable drugs are low and the cost of some of them is extremely high, but in few cases has the stage been reached at which it is desirable to prescribe substitutes. Among synthetic products phenazone, barbitone and phenobarbitone should be used as sparingly as possible, since supplies are quite inadequate *to satisfy the pre-war demand.*

SIR JAMES WALTON will deliver the Bradshaw lecture to the Royal College of Surgeons of England on Thursday, Dec. 14, at 3.30 P.M. He will speak on the surgery of the common bile-duct.

We deeply regret to record the death on Nov. 25 of Mr. WILFRED TROTTER, F.R.S., surgeon and philosopher.

---

[1] The Registrar-General's Decennial Supplement, England and Wales, 1931. Part I.
[2] *Lancet*, 1939, 1, 225.
[3] Reed, L. J., and Merrell, M. *Amer. J. Hyg.* Sept. 1939, p. 33.
[4] Urban and Rural Housing. Economic Intelligence Service, League of Nations. London: Allen and Unwin. Pp. 159. 3s. 6d.

SPECIAL ARTICLES

GENERAL MEDICAL COUNCIL

PRESIDENTIAL ADDRESS

SIR NORMAN WALKER, giving his last presidential address to the General Medical Council on Tuesday morning, remarked that there were only four survivors—Sir Arthur Newsholme, Prof William Russell, Dr Kidd and himself—of those present at the council meeting twenty-five years ago when the country last found itself in a state of war, and quoted Sir Donald MacAlister then saying· "New history is in the making, day by day, for the British Empire and for the world The council is called upon to take an active part in meeting the national emergencies that have arisen, and will arise, in connexion with the civil and military medical services of the country" He went on to refer to the death of Sir Francis Acland, chairman of the Dental Board from its establishment in 1921 until last May. To the work of the Board, as to everything he undertook, he gave himself whole-heartedly He welcomed Mr. Sheridan as his successor. In the death of Dr. A. P Beddard the Pharmacopœia Commission had suffered the loss of the chairman who inspired and directed its work Since the council met in May it had said farewell with great regret to Sir George Newman, a member for twenty years, and for seventeen of them treasurer His experience, gathered in a long career of brilliant work for the State, and the native wisdom of his advice, had been invaluable to the council and to himself. Succeeding him as Crown nominee Dr. J. H. Burn, professor of pharmacology in the University of Oxford, brought to the council expert knowledge which would specially assist in relation to the British Pharmacopœia As additional members for dental business the Privy Council had appointed Prof. Gilmour, returning after an absence of fifteen years, and Mr. Cubie, with long experience as a teacher of dentistry in Glasgow.

REQUIREMENTS FOR QUALIFICATION

We realise, the President continued, that the importance of maintaining due provision for study, and proper requirements for qualification, is enhanced rather than diminished in time of war The numerous and difficult questions which are bound to arise in relation to the position of medical students are in the capable hands of the licensing bodies and of the principals and vice-chancellors, who include three of our members, and arrangements have been made whereby the confusion, caused twenty-five years ago by the rush of students at all stages of the curriculum to enlist, will not recur. Those who have passed their examination in the preliminary sciences, and have had two terms of anatomy and physiology, are regarded as being in a reserved occupation, and will continue their studies We look with confidence to the medical schools and corporations to aid us to maintain, even in the present emergency, the standards of teaching and testing which we regard as essential to efficiency.

The problems which arose in the last war, he added, were not dissimilar Communications were then received from several professional authorities inquiring as to the propriety of modifying or suspending some of the existing regulations in the case of students whose regular course of study for a medical qualification might be interrupted by reason of military service. The reply of the executive committee was to this effect·

> . . . It is the statutory duty of the General Medical Council to secure the maintenance of such a standard of proficiency as shall sufficiently guarantee the possession by candidates of the knowledge and skill requisite for the efficient practice of their profession. To this end the council has formulated, for the guidance of the licensing bodies, a series of recommendations representing in general terms the *minimum* curriculum which, in the council's opinion, should be required by the licensing bodies . . . Cases may arise in which, during the present national emergency, the bodies deem it expedient to modify or suspend the application of their regulations to particular candidates ; but the council expects that all such cases shall be duly recorded and reported to the council in the usual way.
>
> . . . The council feels sure that . . . the bodies concerned will recognise the importance, in the public interest, of maintaining unimpaired the present standard of knowledge and skill required of all who seek to be admitted to the status and privileges of registered practitioners ; and will accordingly agree with the council that it is desirable to secure, in every instance, that the requirements of the *minimum* curriculum are substantially fulfilled.

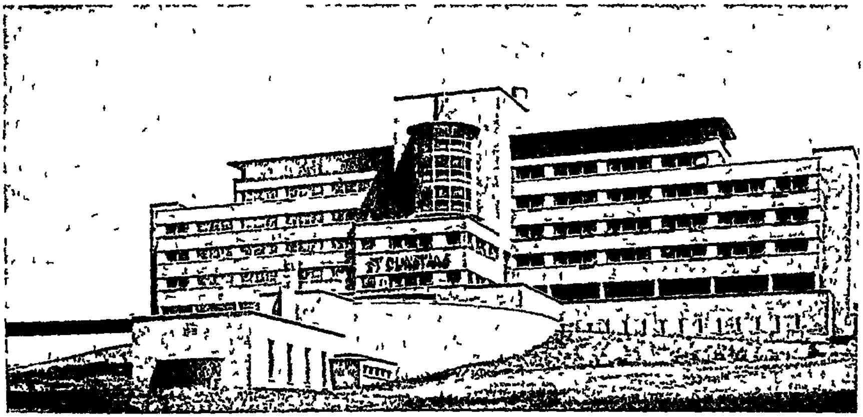
DIFFICULTIES IN AUSTRALIA

The President recalled that in two previous addresses he had found it necessary to refer to certain difficulties and misunderstandings which had arisen in two of the States of the Australian Commonwealth regarding the interpretation of certain sections of Part II of the Medical Act of 1886 The outbreak of war, he added, makes it inexpedient to continue their discussion now We have all noted that in order to supplement the existing arrangements for collaboration between the governments of the British Commonwealth, His Majesty's Government have invited the governments in the Dominions to send a cabinet minister to London to confer with ministers here and with each other. I have long felt that a similar conference, between representatives of the medical boards or councils within those Dominions with which we are linked up through the application of Part II of the Act of 1886 and representatives of this council, would materially help to clear up misunderstandings which undoubtedly exist. But in the meanwhile I suggest that we should all put these difficulties into cold storage. We have never had any doubt as to the adequacy of the degrees conferred by such universities as Sydney and Melbourne, and for various periods extending over nearly half a century their graduates who desired it have been placed without question on our register, and endowed with all the privileges that registration carries In return we hope that the States of Victoria and New South Wales will take the necessary steps to stay their administrative hands, and will accept the invitation to attend, when the emergency is over, the conference I have proposed

ENVOI

The first item in the council's business will be for me to resign from the chair, and for the council to elect one of their number in my place Last Friday it was eight years since the council were pleased to confer upon me the highest honour which is in their power to give, and three years since they were pleased to re-elect me for the period terminating at the end of the session. These eight years have been made very happy by the willing coöperation of members, past and present, and I pass from the chair with heartfelt gratitude to them all

When Sir Norman Walker sat down a vote of thanks was proposed to him by Sir Kaye le Fleming, seconded by Prof. J. S B. Stopford. Mr. H. L Eason was then elected president in his place



The front elevation of the hospital showing the chapel in the foreground surmounted by a winged victory holding the blazing torch of St Dunstan's Behind is the camp bounding the parking ground, the roof of the main entrance being just visible The large projecting bays on the 2nd, 3rd, 4th and 5th floors form the western ends of the central corridors and admit a large amount of light and air

ST DUNSTAN'S WAR HOSPITAL

A YEAR ago St Dunstan's completed a new convalescent home on the South Downs near Rottingdean The home has now been converted into a war hospital for eye casualties in the Navy, Army, Air Force, Fire Brigade, and Police, and can accommodate nearly 200 patients Its commandant is Mr R C Davenport, F R C S, one of the surgeons to Moorfields, and, with its own staff supplemented by Moorfields nurses, it forms a complete specialised hospital unit

The hospital is ideally situated, perched high above and within 200 yards of the main coastal road that runs between Brighton and Rottingdean, whence it is approached by a long and rather steep drive The lay-out is designed to provide the greatest possible amount of light and fresh air, and anyone approaching the hospital is immediately struck by the huge amount of window space The uninitiated might ask what is the point of so much light in a building intended for blind people, but the beneficial effects of light and fresh air are as important for the blind as the sighted, and blind people often retain some consciousness of light, in which case the more light the better Further, so long as St. Dunstan's remains a war hospital, there will be many casualties who will not be blind

The hospital faces west and is completely isolated, there being no building within half a mile of it It has an extensive and uninterrupted view over the English Channel and is entirely surrounded by grass and arable land It is composed of six stories and resembles an aeroplane in shape The nose and fuselage are represented by a projecting block containing the main entrance hall, and above that are long corridors between the wards, which run at right angles on succeeding floors and form the wings of the plane Behind the wards is a second projecting block, which represents the body and tail of the plane This part is occupied by the quarters for orderlies, maids nurses, and senior staff on successive floors and on the top floor are the kitchens

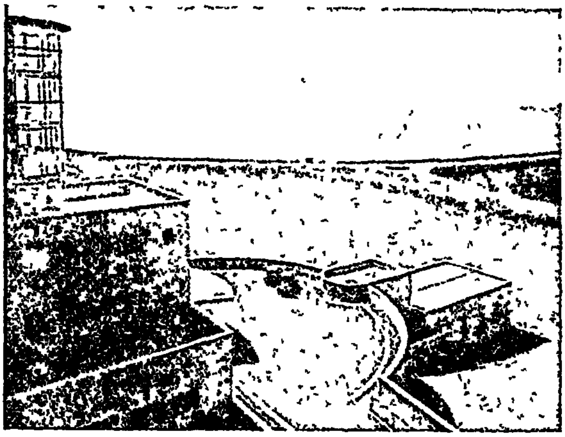
THE INTERNAL PLAN

In more detail, the ground floor is occupied by a large entrance hall flanked by cloak-rooms and lavatories and with lifts facing the entrance Outside the entrance and on the same level there is a large open space for parking cars The first or main floor is occupied by administrative offices, which face the sea, behind them a wide hall leads to the serving-room, and so on At right angles to the hall are a large lounge and dining-room and rooms for instruction in braille and typing These latter rooms open on each side on to a wide terrace with a roof but otherwise open to the air, where the men can get exercise without leaving the home. On this floor, too, are rooms for medical and surgical examination and treatment, with a small temporary operating-theatre Leading off the north side of one of the terraces has been placed the new operating block provided by Lord Nuffield

The central part of the second, third, and fourth stories is given up to wards The second and third floors each contain two wards of 21 beds, one on each side of a central corridor On the fourth floor the accommodation is partly broken up into small wards of 2 or 4 beds, which can be used, if necessary, for officers There are therefore 126 beds on these three floors On the fifth floor are rooms for instruction in trades The sixth floor is now used as a winter garden but can be converted into two wards, each holding 21 more beds, and, if to this number are added 1 beds in a small sick bay on the second floor (which was provided for the convalescent home) and the extra beds that could be placed in the big wards, there is a total of nearly 200

One ward of 21 beds is kept ready for immediate occupation by casualties The other beds are largely occupied by St Dunstan's pensioners, of whom about 80 are in residence These men could all be evacuated if the pressure on beds for war casualties became urgent, and preparations for such an emergency have been made If the hospital became filled with war casualties a far larger surgical outfit would be necessay, and Lord Nuffield has given £7000 to pay for the new operating-block which has been added to the building. This is on the main floor and will be in full working order, supplied with every surgical requirement, such as anæsthetic room, sterilising room, and X-ray rooms, in about two weeks. There are two new operating-theatres, one planned for ophthalmic work and another for general surgery Experience in the last war showed that a great deal of surgery other than ophthalmic was needed for many blinded men When this block is opened, the present theatre and adjoining rooms will be used as a dispensary and outpatients' room, together with a room for minor surgical treatment

Arrangements for the comfort of patients in the wards are admirable. Generous space is allowed for each patient There is a spacious locker for the patients' belongings on one side of each bed and a large "compactum" for clothes on the other. Above each bed is a grid which admits warm air, and each bed is provided with wireless ear-phones. At one side of the bed is a rug securely fastened to the floor. Nearly half the wall space is occupied on both sides by windows which can be opened at will. No occupied ward is left unattended, and the orderly on duty is provided with a room at the end of the ward, where he sleeps at night. When the beds are occupied by war casualties there will be nurses in constant attendance, and the orderly's room will probably be occupied by a sister.



Sasha

The main approach to the hospital showing the large parking ground and the chapel below The actual entrance is hidden by the projection of the main building

From the point of view of a convalescent home for the blind, the visitor will be impressed by the ingenuity and care that has been bestowed on the safety, convenience and comfort of the blinded inmates For instance, in the entrance hall is an embossed model of the hospital and its interior accommodation, sufficiently large and detailed to enable the blind man, by running his fingers over the various parts and aided by simple instructions, to form an idea of how things are planned and where things are All the floors are modelled on exactly the same plan, so that having once mastered the geography of one floor, he is master of the whole. Everything is arranged on the "keep to the right" principle Handrails guide him along corridors to doorways and staircases When a door is reached, he opens it by a long handle let into the door. He cannot get knocked by the door after he has opened it because its return swing is carefully retarded, nor can he bump into the sharp edge of the door or get his fingers jammed, because the two halves of the door are lined by rubber "Dunlopillo" cushioning. On the staircase the handrail guides him to self-closing swing gates which open both ways and warn him that he is on the edge of the stairs. These gates are in two halves, acting independently, so that the man cannot collide or interfere with anybody going in the opposite direction Still grasping the handrail on his right he arrives at the bottom or top of the staircase, as the case may be, and then, projecting from the rail, he finds studs which tell him which floor he has reached.

The dining-hall and lounges where the men congregate and meet their friends are extremely comfortable Here come the "Good Companions," an organisation of ladies who come each day to take men out for walks and help to amuse them. When summer comes there will be a tunnel under the main road to take the men to the cliff and thence to the beach without any danger of being run over. In the winter there are entertainments every evening in the lounge or the winter garden In front of the building, on a lower plane than the entrance hall, is the chapel, where regular services are held Roman Catholics use the small chapel on the fifth floor.

Precautions have been taken regarding fire and air-raids There is a second relief staircase opening on to each floor, and on the landings are stirrup pumps and buckets of water and sand. When the hospital's siren sounds, everybody will take refuge in a heavily protected shelter in the basement, fitted with lavatories and other accessories in case of a prolonged stay.

A YEAR OF MENTAL HEALTH

The report of the Board of Control for 1938[1] records that the position in the mental hospitals at the beginning of 1939 was better than the board had feared The total number of patients on the civil registers was 133,596. Accommodation was increased by 2259 beds and the aggregate overcrowding was reduced by 600 to 2993 The death-rate fell from 7 per cent. to 6 47 per cent and an increase in direct admissions of 545 was more than counterbalanced by an increase of 1628 in the discharges and departures On the other hand, an aggregate deficiency of nearly 3000 beds is serious and the diversion of building labour to defence purposes has delayed new construction If the death-rate remains at its present low level, overcrowding is likely to increase again during the next three years, and there is no immediate prospect of any substantial increase in bed accommodation. For the second year in succession the discharges and deaths from the L C C. mental hospitals exceed the admissions While this is probably the result of efforts to secure earlier treatment, the figures do not represent recoveries only, since a number of voluntary patients have discharged themselves unrecovered

As the result of a questionnaire on treatment by insulin, Cardiazol and Triazol, the board find that these have been used at 92 institutions Of 3531 completed cases 81·4 per cent received cardiazol, 13 5 per cent. insulin, and 5·1 per cent. the combined treatment. Remissions occurred in 30 0 per cent. sufficient to enable them to leave hospital after treatment; 19 per cent. improved but not enough to leave hospital Until better methods are available, the board consider the present methods justified The figures for triazol cover 92 cases only, the results are broadly analogous to those of cardiazol

---

[1] The twenty fifth annual report of the Board of Control for the year 1938 Part I. 1939 H M Stationery Office, York House Kingsway, W C 2 Pp 80 1s 6d

NURSES' HOMES

In 82 public mental hospitals these have been or are being built. More than 40 per cent of nurses still sleep in the hospital buildings. However, even in hospitals which have nurses' homes over 20 per cent of the nurses normally still sleep in the main building While there must be a substantial reserve of nurses to deal with major emergencies, the regular night staff should be adequate for minor emergencies, the day nurses ought not to have their rest interrupted because the night staff is too small to cope with ordinary small disturbances among restless and excited patients The board hope that visiting committees will do what is practicable to reduce emergency night work to a minimum

MATRIMONIAL CAUSES ACT

Some authorities now charge a fee when a medical superintendent gives a report for use in a divorce case under the Matrimonial Causes Act, 1937, and their example will no doubt be followed The board consider that in principle this charge is not unreasonable, for the medical superintendent is required to spend time on a matter which does not benefit his patient Whether he should keep the fee will depend on the terms of his contract with the authority The board hope that authorities will allow their officers a reasonable discretion to waive the charge when its payment would involve real hardship Most divorce cases are brought by poor petitioners, and sometimes the Poor Persons Committee, before deciding to assist a case, may require from the medical superintendent an indication of the patient's prospect of recovery If the full fee had to be paid, the petitioner might not be able to proceed at all It is clearly not the duty of the medical staff to go out of their way to facilitate proceedings, but it is equally unwise for local authorities to seem to obstruct persons who are anxious to take advantage of the new law

VOLUNTARY ADMISSIONS

Although the board are generally satisfied with the increase in the proportion of voluntary admissions, there is still too wide a margin between the more and the less progressive hospitals A hospital in which there is overcrowding tends to restrict voluntary admissions, and in some areas too little trouble is taken to avoid certification when it can be avoided Where the medical superintendent is attached as consultant to the mental ward of the municipal hospital and public assistance institution, he can persuade many patients to enter the mental hospital on a voluntary basis The board have been criticised for saying that admissions under certificate need not be more than a third of the total, but they name areas in which it is less Occasionally, however, subterfuges are adopted, with the kindest of intentions, so as to admit on a voluntary basis patients who in fact have no volition Good intentions can never justify an evasion of the law, and such devices are bound in the end to lead to trouble and ill feeling

OUTPATIENT CENTRES AND PSYCHOTHERAPY

The numbers of outpatient centres run in conjunction with mental hospitals continue to increase, and at the end of 1938 the total was 177 More than 19,000 patients attended for treatment, on over 74,000 occasions These figures do not cover outpatient centres independent of mental hospitals The board do not know exactly how many these are, but at least 25 are associated with hospitals in the London area and there are at least 32 excluding child-guidance clinics in other parts of the country Only three public mental hospitals still have no centre associated with them Most of the centres have weekly sessions, and few are open less than twice a month The centres are nearly all in the large cities, the small towns and the country districts are still unprovided for The solutions are either improved transport for patients or visiting teams to outlying places. The board fear that many mental hospital committees do not yet appreciate how important outpatient work is, or how much of the doctor's time and energy it takes up

A medical psychotherapist has been added to the staff of St Bernard's Hospital on a sessional basis to deal with patients who appear likely to benefit by psychotherapy Posts of this kind already exist at Hill End and the Maudsley The Mental Hospitals Committee advocated a part-time appointment because, among other reasons, a part-time doctor cannot appear to the patient to be responsible for detention This argument cannot be pressed too far for if carried to its logical conclusion the whole time staff would be limited to the care of the patient's physical condition

Mental Deficiency

There has been good progress in the provision of beds for mental defectives The total number increased during 1938 from 43,552 to 45,717 Further, two large colonies at Botleys Park in Surrey and School Aycliffe in Durham, and the large extensions at Leybourne Grange in Kent, are nearly finished Almost all the larger authorities in England now have enough beds to meet their more pressing needs—though not enough, and sometimes not nearly enough, for their ultimate needs The board regret that they cannot record similar progress in Wales However, in two areas substantial grants by the Special Area Commissioners have greatly eased the position

OCCUPATION CENTRES

Occupation centres increase in number, though not as rapidly as the board had hoped A well-equipped centre was opened at Newcastle under-Lyme—one of the first to be specially designed These centres serve a useful purpose and undoubtedly reduce the demand for colony beds They should be used primarily for the tractable and ineducable lower-grade defectives who live in good surroundings It may sometimes be necessary to admit higher-grade feeble minded patients, but a mixture of grades makes organisation and teaching much more difficult In the end the feeble-minded patients, who as a class are socially unadaptable, generally have to be sent to a colony, and the delay makes the formation of good habits more difficult for them What is saved by postponing their entry into a colony is lost if by the time they enter it they are more troublesome The training of supervisors for occupation centres has not received sufficient attention Authorities offer widely different salaries, ranging from a figure which would hardly attract a charwoman to a salary higher than that paid to other mental health workers The board feel that the time has come to set up a recognised training scheme for supervisors of occupation centres.

PHYSICAL TRAINING

Physical training is often little adapted for the special needs of mental defectives, particularly those of the lower grades. Instructors are too often chosen because they have not wholly forgotten their army drill. It would be a help if the Central Association for Mental Welfare could add to its visiting staff a physical-training instructor who has made a special study of the problem and could teach the nurses the most suitable exercises. Such physical training might include breathing exercises aiming at gradual chest expansion, relaxation and coordination exercises, and training of the sense of rhythm—which is keener in many defectives than is sometimes supposed.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

ROYAL EDINBURGH HOSPITAL FOR INCURABLES

Prof. L. S. P. Davidson, speaking at the annual meeting of the Royal Edinburgh Hospital for Incurables, referred to the advantage of having two institutions, one in the middle of the town, the Longmore Hospital, and one in the country at Liberton. These hospitals were intended not merely for the care of the aged and infirm but also to undertake the skilled nursing and medical treatment of all patients suffering from pain and distress. The nursing of incurable patients was a far greater physical and psychological strain on nursing staffs than the nursing of acute sickness, which in the majority of instances rapidly recovered. Despite the part played by municipal hospitals there was every likelihood that the need for hospitals for the treatment of the chronic sick would increase because the remarkable advance in preventive and curative medicine was steadily bringing a larger number of persons to the age at which malignant disease and chronic diseases of the nervous and cardiovascular systems tended to occur.

TREATMENT OF CANCER

Local facilities for the treatment of cancer were discussed at a conference of local authorities in Stirlingshire with representatives of the county infirmaries and the B.M.A., held to consider the requirements of the Cancer Act, 1939. Dr P. F. McFarlan explained that the infirmaries at Stirling, Falkirk and Alloa, within a radius of approximately 12 miles, had provided treatment for cancer for many years. To continue to give this treatment at these infirmaries would be the most efficient and most economical plan under the act, he submitted. Deep X-ray equipment was to be provided at Stirling Royal Infirmary in the near future. Dr McFarlan considered that to send patients from a distance to Glasgow or Edinburgh for deep X-ray treatments, as was done at present, was most unsatisfactory. The conference agreed to recommend to the authorities represented that they should combine for the purpose of carrying out the provisions of the act, and a committee of medical practitioners was appointed to submit a report. If the county councils of Clackmannan and Perth are prepared to join in the scheme, the medical officers of health of these counties and the medical superintendent of Alloa County Hospital will be added to the committee.

EMERGENCY BEDS IN SCOTLAND

Further details are now available regarding the organisation of hospital beds for air-raid casualties and other war purposes. Throughout Scotland 31,000 beds have now become available. These have been obtained as follows. In existing hospitals, 14,500; in buildings converted as hospitals, 5000; in hutted annexes of existing hospitals, 7500; in new hospitals, 3000; and in private houses, 1000. The intention is to increase the number of private houses used for hospital purposes as the occasion arises. All casualty receiving hospitals and base hospitals will be fully equipped and staffed as general hospitals. Operating theatres are being provided or augmented as the case may be. In the event of air-raids casualties will be sent from first-aid posts or from first-aid parties working in the streets to casualty receiving hospitals. If these become full, then arrangements are available for the diversion of the casualties to other suitable institutions. As soon as possible after the air-attack patients who are able to be removed will be transferred to base hospitals situated in the less vulnerable areas. Special centres are also being set up for the treatment of particular types of cases such as head injuries, orthopædic cases, face and jaw injuries, and psychiatric emergencies. Facilities are being provided for continuous transport between hospitals in order that beds may be kept in the first line hospitals for the reception of casualties, and for the transference as quickly as possible to other areas of those patients who can be moved. For this purpose several ambulance trains have been provided, each capable of carrying 270 patients. Seventy-five buses have been converted so as to carry eight stretchers each. There is also a reserve of ordinary buses designed for use in supplementing the arrangements already made by hospitals for the transport of sitting cases.

HORMONE STANDARDS

THE third international conference on the standardisation of hormones, held at Geneva last year, decided that international standards should be established for certain hormones of the anterior lobe of the pituitary gland and analogous substances found in urine and serum, and that international units should be defined in terms of a weight of each such standard. It was further decided that the final preparation of these standards, their dispensing in a form suitable for the use of the laboratory worker, and their storage, preservation and subsequent distribution should be undertaken by the National Institute for Medical Research at Hampstead.

The first of these new standards—that for the gonadotrophic substance of human urine of pregnancy (chorionic gonadotrophin) was established in May of this year. The preparation of two additional international standards has now been completed—namely, for the gonadotrophic substance of pregnant mares' serum and for the lactogenic (crop-gland stimulating) substance of the anterior lobe of the pituitary gland. The former standard has been prepared from material provided by five manufacturing firms in four different countries, and the latter from material supplied by seven manufacturing firms and two research institutes in five countries.

In the case of each standard the individual samples were examined by members of the conference and a suitable mixture was then made to serve as the respective international standard, and finally dispensed in the form of tablets which have been packed in sealed tubes. Each tablet contains approximately 100 international units. The standard for the gonadotrophic substance of pregnant mares' serum is dispensed in the form of 25 mg. tablets, each sealed tube containing ten of the tablets, and the international unit has been defined as the specific gonadotrophic activity contained in 0.25 mg. of the standard preparation The standard for prolactin is dispensed in the form of 10 mg tablets, each sealed tube containing ten of the tablets, and the international unit has been defined as the specific activity contained in 0 1 mg of the standard preparation

As with the international standards for other hormones, drugs and vitamins, these standards are held, on behalf of the Health Organisation of the League of Nations, at the National Institute for Medical Research, and are distributed from there to national control centres in other countries for distribution to laboratories, institutes and research workers, and also to workers in countries where national control centres have not yet been established Those requiring the new standards in the United Kingdom should apply to the Department of Biological Standards, National Institute for Medical Research, Hampstead, N W 3

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month, his name can be seen later in the half yearly index

FROM A NORTH-COUNTRY PRACTITIONER

I

None but the greatest brains can think aloud to the tune of several columns a week for a month, but fortunately musing often passes muster for thinking though it is really very different Thinking implies conscious constructive ordered reasoning But it is easier to cut out the reasoning, as a staunch old Conservative butcher used to do By a simple device he discovered he could double his profits on sheeps' heads He found his customers were willing to pay as much for the brains as the whole head, and when the supply of brains ran out, he told his clients he had ' nowt nobbut Radicals," and so labelled he sold the decerebrate variety openly for years

Most of this was written before war came Troops marching past my door are singing only the songs of twenty-five years ago, though as yet I have heard none of those excellent Moody and Sankey hymn tunes with suitable verbal alterations which were then prevalent Possibly this is symptomatic of the decline in church and chapel attendance From what I hear as they pass the language remains much the same with the same adjectival stresses Probably there will still be nice homes where sons will for a moment forget where they are and inadvertently make use of the adjectives which are current coin in their new environment Officers are I expect still filling their spare time playing bridge and countless men are learning to play at "House" A ship's quartermaster I knew found a belt full of money in a lavatory on a troopship on the way home from South Africa and started a crown and anchor board Doubtless in 1939 he is playing the same game as he did in 1902 and 1914 and investing the profits as he did then Students and nurses will be gratified at the prospect of qualifying a little more easily

• • •

Meanwhile it seems doubtful if any stocks have fallen quite so catastrophically as has the capital invested by medical men in practices It seems somehow incongruous that whilst emergency committees of the B M A are running schemes for the protection of practices, the British Medical Bureau from the same address should head their advertisement in the B M J with a heavily typed "Special Notice Many practices are becoming available for immediate purchase for cash at rates lower than those recently prevalent" It may all come right after the war, but the fact remains that the value of practices has fallen to about half what it was a few weeks ago An old man was wont to advise me ' Always put your money where there is water in it—in beer or bleaching or paper It costs nothing' With a sly wink and one finger on his medicine bottle he added "But you have already done so" Perhaps it is the water which has now run out In any case, partnerships cannot possibly pay out to executors sums based on peace-time valuations, and doubtless many a hurried deed has been drawn up in an attempt to regulate this state of affairs by arranging to pay what the practice is worth two years after the war is over Some people too are afraid that what is now the voluntary—and therefore democratic—regimentation of a whole profession may prove too great a temptation to some post-war statesman So it is just possible that such deeds and arrangements may not be necessary

• • •

The impact of the military machine on medicine has been considerable The Crimean war was responsible for a uniformed nursing service with obedience as its watchword In the last war such abbreviations as D D M S were in daily use and afterwards they were brought back home The sign ℞ is an invocation to Jupiter for help The habit of abbreviation has now spread to such an extent any elderly practitioner might well suggest that the ℞ sign should precede the following typical telephone conversation —

"H S speaking R S O saw this in O P Father died of G P I Mother of D T s. Previous history of Ts and As in childhood, also S M R Scars of ops. for I D K and L I H Gyn gives a history of a C S and later a D and C, followed by S V H K J present W R negative both blood and C S F, so no Sy smear for G C has gone to V D Now suffering from P U O, B P and B S normal No P A No increase V F or V R No sign of T B or dip, swab shows streps Widal negative V D H mitral I've done a P V and a P R The pro says B O and P U *today*"

At the end of another war one wonders whether our notes may not have become a series of hieroglyphics

• • •

Once we are told there was a golden age There have been ice, stone, bronze and iron ages Surely this is the paper age There are newspapers by the million, tons of paper advertisements, floods of books and periodicals piles used for correspondence and wrapping cigarettes, chocolates and parcels Even our wealth has turned to paper We sign a bit of paper called a cheque and in return receive other bits of paper called £5, £1 or 10s notes In fact our enormous wealth is largely a matter of credit and paper Now we are inundated with a fresh flow of instructions, letters, forms, cards, and coupons Probably Army form [illegible] is still being rendered in triplicate It is satisfactory to think that the price of paper is controlled

• • •

All great medical advances have been resolutely opposed, witness the work of Lister and Simpson

It is no uncommon thing now to class Freud and psychotherapy with these others Disciples and devotees have a way of being more certain than the master, of building up a system of dogma and doctrine which assumes the character of a religion, even to the formation by schism of mutually intolerant sects Any scientific questioning of postulates or results is first looked upon as heresy and then dismissed as ignorance Freudian theories are no more shocking than the theory of evolution, though the latter has stronger scientific proofs Thirty years after Simpson and Lister enunciated their discoveries results showed their complete truth. Can the same be said of psychotherapy? Results appear inconsistent and unpredictable Early cases do best but the difficulty is that it is well-nigh impossible to persuade the early cases to undergo this form of therapy. The instinctive reaction to any such suggestion is that one is placing their sanity in question. In addition such treatment is necessarily expensive and provincial hospital psychiatric clinics few and far between The more chronic cases, even when they have shown some improvement, are remarkably prone to relapse 'Mental hospitals have been classified into those where patients are looked after according to the law, those where in addition to this prize flowers and vegetables are grown, and those few which are up to date. This may perhaps account for the slight impression which psychotherapy has made on the psychoses But in the psychoses the pendulum once more appears to be swinging back to the physical At the moment it seems as though we had only got hold of a part of the truth

I have never seen such treatment do any harm It is not only in the chronic abdomen of women that psychotherapy does less harm than more generally accepted methods of treatment. A business man with a history of asthma in childhood found his sole joy in achievement. He rescued a derelict manufacturing concern and made it run on oiled wheels at a substantial profit Whenever anything at the factory required his concentrated attention he was very fit. Between times when he had grown bigger and better chrysanthemums than anybody else he turned to keeping exotic fish In an interval when neither the factory nor the fish required him, he developed a pain in the groin. A surgeon told him that he had a varicocele, must wear a suspensory bandage, and that no operation was indicated One day in London he still had a pain and saw a really eminent surgeon who operated to cure the varicocele Afterwards he still had a pain and in addition an incisional hernia When next he saw the eminent surgeon the latter arranged to cure the hernia and removed one testis But he still had a pain and one night in a London hotel had acute retention of urine A genito-urinary surgeon removed his prostate and he then developed frequency of micturition After a course of vaccines and physiotherapy he arranged a consultation between the eminent surgeon, the genito-urinary surgeon, and a really first-rate physician, as a result of which he was sent to South Africa for six months He returned home with a pain in the groin and intolerable frequency At this stage he explained that he had now spent some £4000 and was willing to try psychotherapy. All went well for a few months and instead of passing water every few minutes, he was able to go for an hour without doing so Then one day he went to a flower show and was seized with an attack of asthma. A well-intentioned layman, with ephedrine in his pocket, and ignorant of the fact that it may act as a bladder irritant, relieved the asthma. The effect on the frequency was catastrophic and he decided that psychotherapy was useless. He continued with his pain in the groin and died of a cerebral hæmorrhage. With that history in mind I look on psychotherapy as relatively innocuous

Panel and Contract Practice

Increased Panel Lists

GLASGOW insurance committee has been considering an increase in the *number of patients for whom* insurance practitioners may accept responsibility. Hitherto Glasgow has fixed a maximum of 2100 with an addition of 1300 for an assistant, and it would require the special sanction of the Minister to go beyond a maximum of 2500 for a man in practice single-handed, or an average of 2500 with a personal maximum of 3000 for partners and 1500 extra for a permanent assistant At the outbreak of war the health departments in England and Scotland warned insurance committees that some latitude might be found necessary and a general approval was given for an addition of 500 to the prescribed maxima It was also hinted that if military calls on civilian practitioners became heavy some further increase might become necessary Glasgow's proposal has met with some lay opposition, chiefly to the effect that for doctors, like other workers, there is a reasonable limit to the work they can undertake Any further increase in the number of panel patients would lead to scamped work The obvious reply is that the new maxima in Glasgow are only 100 more than has long been permitted in most other areas and that no practitioner will immediately take on an additional 500. Insurance practices in vulnerable areas are already affected by evacuation and there will be a continuous loss as enlistments become known to approved societies London and most other insurance committees have already agreed to raise the maximum from 2500 to 3000

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 11, 1939

Notifications—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1105; whooping-cough, 867, diphtheria, 967; measles, 1116, pneumonia (primary or influenzal), 621; puerperal pyrexia, 172: cerebrospinal fever, 26; poliomyelitis, 16: polio-encephalitis, 3, encephalitis lethargica, 6; dysentery, 11; ophthalmia neonatorum, 71. No case of cholera, plague or typhus fever was notified during the week.

Deaths—In 126 great towns, including London, there was no death from smallpox, 2 (0) from enteric fever, 2 (0) from measles, 2 (0) from scarlet fever, 5 (0) from whooping-cough, 19 (0) from diphtheria, 38 (5) from diarrhœa and enteritis under 2 years, and 41 (3) from influenza The figures in parentheses are those for London itself

Southend-on Sea and Liverpool each had one death from typhoid Fatal cases of diphtheria were scattered over 18 great towns, *Poole reporting* 2 Birmingham had 6 deaths from diarrhœa, Liverpool 3, Heston and Isleworth 4, Liverpool and Nottingham each 3 Three deaths in Birmingham were attributed to influenza

"... And it oughtn't to need a war in order to make a nation paint its kerbstones white, carry rear-lamps on its bicycles, and give all its slum children a holiday in the country. . . However, it *has* needed one: which is about the severest criticism our civilisation could have "—MRS MINIVER, in the *Times*, Sept 29

It is no uncommon thing now to class Freud and psychotherapy with these others. Disciples and devotees have a way of being more certain than the master, of building up a system of dogma and doctrine which assumes the character of a religion, even to the formation by schism of mutually intolerant sects. Any scientific questioning of postulates or results is first looked upon as heresy and then dismissed as ignorance. Freudian theories are no more shocking than the theory of evolution, though the latter has stronger scientific proofs. Thirty years after Simpson and Lister enunciated their discoveries results showed their complete truth. Can the same be said of psychotherapy? Results appear inconsistent and unpredictable. Early cases do best but the difficulty is that it is well-nigh impossible to persuade the early cases to undergo this form of therapy. The instinctive reaction to any such suggestion is that one is placing their sanity in question. In addition such treatment is necessarily expensive and provincial hospital psychiatric clinics few and far between. The more chronic cases, even when they have shown some improvement, are remarkably prone to relapse. Mental hospitals have been classified into those where patients are looked after according to the law, those where in addition to this prize flowers and vegetables are grown, and those few which are up to date. This may perhaps account for the slight impression which psychotherapy has made on the psychoses. But in the psychoses the pendulum once more appears to be swinging back to the physical. At the moment it seems as though we had only got hold of a part of the truth.

I have never seen such treatment do any harm. It is not only in the chronic abdomen of women that psychotherapy does less harm than more generally accepted methods of treatment. A business man with a history of asthma in childhood found his sole joy in achievement. He rescued a derelict manufacturing concern and made it run on oiled wheels at a substantial profit. Whenever anything at the factory required his concentrated attention he was very fit. Between times when he had grown bigger and better chrysanthemums than anybody else he turned to keeping exotic fish. In an interval when neither the factory nor the fish required him, he developed a pain in the groin. A surgeon told him that he had a varicocele, must wear a suspensory bandage, and that no operation was indicated. One day in London he still had a pain and saw a really eminent surgeon who operated to cure the varicocele. Afterwards he still had a pain and in addition an incisional hernia. When next he saw the eminent surgeon the latter arranged to cure the hernia and removed one testis. But he still had a pain and one night in a London hotel had acute retention of urine. A genito-urinary surgeon removed his prostate and he then developed frequency of micturition. After a course of vaccines and physiotherapy he arranged a consultation between the eminent surgeon, the genito-urinary surgeon, and a really first-rate physician, as a result of which he was sent to South Africa for six months. He returned home with a pain in the groin and intolerable frequency. At this stage he explained that he had now spent some £4000 and was willing to try psychotherapy. All went well for a few months and instead of passing water every few minutes, he was able to go for an hour without doing so. Then one day he went to a flower show and was seized with an attack of asthma. A well-intentioned layman, with ephedrine in his pocket, and ignorant of the fact that it may act as a bladder irritant, relieved the asthma. The effect on the frequency was catastrophic and he decided that psychotherapy was useless. He continued with his pain in the groin and died of a cerebral hæmorrhage. With that history in mind I look on psychotherapy as relatively innocuous.

Panel and Contract Practice

Increased Panel Lists

GLASGOW insurance committee has been considering an increase in the number of patients for whom insurance practitioners may accept responsibility. Hitherto Glasgow has fixed a maximum of 2100 with an addition of 1300 for an assistant, and it would require the special sanction of the Minister to go beyond a maximum of 2500 for a man in practice single-handed, or an average of 2500 with a personal maximum of 3000 for partners and 1500 extra for a permanent assistant. At the outbreak of war the health departments in England and Scotland warned insurance committees that some latitude might be found necessary and a general approval was given for an addition of 500 to the prescribed maxima. It was also hinted that if military calls on civilian practitioners became heavy some further increase might become necessary. Glasgow's proposal has met with some lay opposition, chiefly to the effect that for doctors, like other workers, there is a reasonable limit to the work they can undertake. Any further increase in the number of panel patients would lead to scamped work. The obvious reply is that the new maxima in Glasgow are only 100 more than has long been permitted in most other areas and that no practitioner will immediately take on an additional 500. Insurance practices in vulnerable areas are already affected by evacuation and there will be a continuous loss as enlistments become known to approved societies. London and most other insurance committees have already agreed to raise the maximum from 2500 to 3000.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 11, 1939

Notifications.—The following cases of infectious disease were notified during the week. Smallpox, 0; scarlet fever, 1165; whooping-cough, 807; diphtheria, 967; measles, 1146; pneumonia (primary or influenzal), 624; puerperal pyrexia, 172; cerebro-spinal fever, 26; *poliomyelitis*, 16; *polio-encephalitis*, 3; encephalitis lethargica, 6; dysentery, 41; ophthalmia neonatorum, 71. No case of cholera, plague or typhus fever was notified during the week.

Deaths.—In 126 great towns, including London, there was no death from smallpox, 2 (0) from enteric fever, 2 (0) from measles, 2 (0) from scarlet fever, 5 (0) from whooping-cough, 19 (0) from diphtheria, 38 (5) from diarrhœa and enteritis under 2 years, and 41 (3) from influenza. The figures in parentheses are those for London itself.

Southend-on-Sea and Liverpool each had one death from typhoid. Fatal cases of diphtheria were scattered over 18 great towns, *Poole reporting 2. Birmingham had 6 deaths from* diarrhœa, Liverpool 3, Heston and Isleworth 4, Liverpool and Nottingham each 3. Three deaths in Birmingham were attributed to influenza.

"... And it oughtn't to need a war in order to make a nation paint its kerbstones white, carry rear-lamps on its bicycles, and give all its slum children a holiday in the country. . . . However, it *has* needed one: which is about the severest criticism our civilisation could have."—Mrs. Miniver, in the *Times*, Sept. 29.

LETTERS TO THE EDITOR

REHABILITATION OF THE TUBERCULOUS

SIR,—At last! In your issue of Nov. 11 I perceived echoes of a voice—my own—which had cried long in the wilderness. Evidently there were ears in that wilderness, however, for now your correspondent "T. B." is crying in the same key and your leading article provides a harmonious and authoritative obbligato.

Of course the rehabilitation of the tuberculous must be handled on a national basis. Of course it must provide "remunerative employment for ex-sanatorium patients either in colonies or in special factories under medical supervision." Of course regional control will prove more effective than "the *isolated and independent action of separate local* authorities." I gather that "three national organisations with the word tuberculosis in their titles" are to appoint a liaison committee to consider these points, but is there, in fact, any need for a committee to confirm the obvious? Surely what this committee will need to do is to work out a scheme indicating (*a*) who is to provide the remunerative employment, (*b*) who is to meet the losses (if any) incurred and (*c*) where the capital is to come from. Local authorities, and even coalitions of local authorities forming a region, are likely to fight shy of anything in the nature of municipal trading; yet without trading how can there be remunerative employment? And without the cooperation of the local authorities where is the financial responsibility to rest? It is a big problem. There are 70,000 sputum positive cases in the country and only 30,000 beds for them (even in normal times). The scheme must therefore envisage the provision of "remunerative employment" for tens of thousands of people if it is to be anything more than a pious demonstration of benevolent intentions.

In 1930, in collaboration with Mr Reynell Wreford, I submitted a scheme to the Ministry of Health. The proposals were never seriously challenged. It was not disputed that they had merit. But nothing happened, the echoes died away, and the wilderness remained. In 1936 further efforts were made, in connexion with an interdepartmental committee, to draw attention to the necessity for the national organisation of rehabilitation. This time the scheme was extended to include all disabled persons, and not the tuberculous alone. But it might as well have included the denizens of the moon, for it evoked neither criticism nor action. Despairing of securing action—or even reaction—at home, I next incorporated the scheme in my address on the rehabilitation of the tuberculous for the 1939 conference of the International Union Against Tuberculosis to be held in Berlin last September. There was no lack of action this time. No sooner had proofs been circulated than war broke out.

I am, Sir, yours faithfully,

PENDRILL VARRIER-JONES

Papworth Village Settlement, Cambridge, Nov. 21.

EXAMINATION OF RECRUITS

SIR,—There is obviously no doubt in the minds of medical men today, whether radiologists or clinicians, that an X-ray examination of the chest is desirable both in the interest of those going into the Services and of others who may be associated with them. Furthermore, the cost of such an examination will be negligible in comparison with that of paying pensions to those who are incapacitated as a result of such service. The real question, which has not yet been solved, is how this X-ray examination should be carried out. Various methods have been suggested and are being investigated by the Ministry of Health. Of the alternatives, my opinion is as follows:

1. Fluoroscopy only is wrong, (*a*) because a certain number of lesions will not be seen even by the most experienced observer, and (*b*) because such examination would form no permanent record.

2. Miniature radiography as carried out in this country at present would not be sufficiently accurate owing to the lack of detail in the films, at least, judging from those I have seen. I cannot say whether this is due to the technique employed or to the screen, camera, lens or film, for miniature radiograms taken in Germany and in America seem more satisfactory.

3. Paper films have passed the experimental stage and they could be used satisfactorily providing that they were taken by expert radiographers and viewed under proper conditions. Even then there would undoubtedly be cases in which celluloid films would be necessary for confirmation.

4. There is no doubt that the routine method of taking one 15 by 12 in. celluloid film in each case is the ideal, and that this or the paper film is the only method which can be immediately brought into use in the present emergency. Facilities for screening certain cases would also have to be provided.

I am, Sir, yours faithfully,

Devonshire Street, W.1, Nov. 27. J. V. SPARKS

SIR,—As one who has been engaged for some years in the examination of recruits for the forces I should like strongly to endorse the remarks made by "Chairman of a Board" in your issue of Nov. 11. Amongst the instructions laid down for the selection of recruits, the following were some of the requirements: A complete medical history, evidence of nervous stability, exercise-tolerance test, where there is any doubt about circulatory efficiency, auroscopic examination and hearing test, pupil reflex to light and accommodation, eye movements and colour vision, knee-jerks and other reflexes, and, of course, the usual measurements and a complete examination of the various bodily systems. Every medical man who knows his job is aware that it is impossible adequately to carry out an examination such as this in 5 minutes, much less in 2½ minutes, as appears to be suggested by the authors of the present regulations. The *remuneration received for this rather comic examination* works out at 1 4*d* per recruit examined, or, in the case of the expert who takes only 2½ minutes, at 8*d* per recruit. I suggest that the inscription, E. & O. E. in bold letters of red ink should be written across each report and initialled by the chairman.

I am, Sir, yours faithfully,

Isle of Man, Nov. 22. R. J. COURTNEY

INTESTINAL BACTERIA AND RESISTANCE TO OXYGEN-WANT

SIR,—In a previous letter[1] it was reported that the resistance of white rats to anoxia may be definitely increased by feeding on a diet consisting wholly of carrots. Since then these results have been confirmed and the factors underlying this favourable effect include (*a*) low protein content, (*b*) presence of fibre, (*c*) presence of glutamine and (*d*) adverse influence upon intestinal bacterial flora[2] Other articles of diet giving results somewhat similar to that of the carrots are apples, bananas, parsnips, and beetroot. Protein diets containing meat, casein, fish or vegetable proteins (except zein) give adverse effects It has recently been found that the adverse effects of protein (e g, casein) may be counteracted by adding potassium tellurite (5 to 10 mg. or grains 0 07–0 15 per diem per rat of 80 g) to the diet This substance in very low concentration inhibits growth of gram-negative bacteria, including *B coli*,[3] and also its administration by the mouth has been suggested for the treatment of carriers of *B. typhosus*; by mouth it is *relatively* non-toxic Since the animal experiments with the protein diet indicate that the resistance (time of survival) to very low oxygen pressure (7 per cent of one atmosphere, air barometric pressure 245 mm. Hg, temp. 33° C) is more than doubled by small doses of potassium tellurite, its trial at high altitudes and in patients with severe anoxia (pneumonia, heart disease) seems justified The evidence from the animal experiments is that during severe anoxia poisons are produced from protein in the gut and these poisons have been lessened and antagonised by the above methods in white rats The dyes acriflavin, brilliant green and gentian violet, in doses similar to the above have also given some favourable results in antagonising the protein effect; so have diets containing adsorbents—e.g , charcoal, paper pulp, kaolin

---

[1] *Lancet* 1939, i, 914.

I am, Sir, yours faithfully,

London, N.W.3, Nov. 23 J. ARGYLL CAMPBELL

PUBLIC MEDICAL SERVICES AND EVACUEES

SIR,—In common with many other services, the London Public Medical Service has had to face the problem of the large number of subscribers who are evacuees, either voluntary or under the Government scheme The unaccompanied children are, of course, lost as subscribers "for the duration," or until their parents bring them back But in London we have an appreciable number of subscribers who have gone away on their own account, and who, having become accustomed to insurance against the risk of a doctor's bill, are anxious to retain this advantage The London Public Medical Service has, up to the present, told these subscribers that if while away but still keeping up their subscriptions they incur a doctor's bill we will pay or help to pay it A considerable number of such claims have been paid, the extent of the grants being based on the National Deposit Friendly Society scale and also on length of membership Such a plan, while convenient for a short time, is not suitable for a long period

From Jan. 1, 1940. therefore, we propose to adopt the following plan Each subscriber who has left or proposes to leave London on account of the war, and keeps up the necessary payments, will be given a card to present to a local doctor of the subscriber's own choice We ask such doctors to accept these subscribers for a quarterly payment of 3s. 3*d*. per person, which will be guaranteed and paid by us in full even if the subscriber ceases payment during the quarter. The subscribers will be urged to select a doctor immediately on arrival and not to wait until they are ill. This capitation fee is to cover an ordinary general-practitioner service with the usual medicines It is better than national health insurance financially, apart from there being no record keeping or other regulations The success of the scheme depends on the cooperation of doctors in the reception areas It should appeal to them because public medical service subscribers belong to a class which finds it difficult to meet bills A guaranteed net payment of 13s. a year with no record keeping or other clerical obligations is a distinctly better proposition than the chance of recovering a bill from total strangers, or the unpleasant alternative of trying to get cash payments from people who are often in straitened circumstances I shall be glad to answer enquiries from other services as to our administrative procedure.

I am, Sir, yours faithfully,

Tavistock Square, W.C 1, Nov 23. ALFRED COX,
Secretary, London Public Medical Service

EVACUATION AND THE CHILD'S MIND

SIR,—The evacuation schemes are designed to afford protection for the population and to support morale, it is therefore important to conserve as far as possible those elements in our social and family life which foster courage and trust, now and for the future.

It appears that a plan is being considered which would involve separating large numbers of children between the ages of two and five from their mothers. If this were done a strain would be put on the child's self-sufficiency for which he is seldom well prepared. At a time when his need for security, and the comforting assurance of familiar faces, is great, his removal from his parents and home will tax him severely; at a later age the separation is better endured Unfortunately the effects of this strain are not always immediately apparent, but may show themselves in unsatisfactory or unhappy social relationships later in life

These considerations should not be overlooked when framing a practical policy Even a situation of emergency should not be allowed to divert our attention from the basic needs of the mental and social development of our future fellow citizens

I am, Sir, yours faithfully,

London, Nov 26 JOHN RICKMAN.

ANTENATAL AND POSTNATAL CARE

SIR,—I much appreciate the kindly review of the 3rd edition of my book "Antenatal and Postnatal Care" in your issue of Nov. 18 I beg leave, however, to join issue with the reviewer when he says, referring to the section on the toxæmias of pregnancy and the twelve-year study of the remote prognosis of these disorders carried out by Miss Dodds and myself at University College Hospital · "This seems substantially to support the view that pregnancy may be regarded as one of the most delicate tests of renal function, in the presence or absence of any previous history of nephritis" On the contrary, the study showed that there are better tests of kidney function, and I had thought that this was made abundantly clear in my book It is shown there that pregnancy may be an unreliable test of renal function, for in a large proportion of cases of chronic glomerular nephritis complicating pregnancy there may be no exacerbation of symptoms and no apparent consequent deterioration in the patient's condition either during the pregnancy or after it. If your reviewer had said that the findings supported the view that pregnancy is the best test of stability of blood-pressure I should have agreed with him, for considerable evidence was found, and is stated in my book, that the cause of "recurrent toxæmia" is in the great majority of cases to be found in a latent or actual hypertension

I am, Sir, yours faithfully,

F. J BROWNE.

University College Hospital, W C 1, Nov 20

---

[2] *Quart. J exp Physiol* 1939 29, 259

[3] Garrod, L. P , *St Bart's Hosp Rep* 1933 66, 205

A PLAN FOR BRITISH HOSPITALS

SIR,—The correspondence provoked by your special commissioner's article has proved most enlightening If, as I presume, you have printed a fair sample of your correspondence then it seems on the whole that to the general practitioner the plan appears reasonable, whilst to the consultant it appears execrable. As both are concerned with the care of the sick, the divergence of their views is inexplicable save on the grounds of difference in personal interests

Looked at from the point of view of the patient the case for decentralising the city hospitals is difficult to reject I do not think we need take too seriously the horrifying picture of bus loads of dyspnœic patients plunging along our arterial roads on their frantic way to the country hospitals In his wisdom your commissioner had provided against this Nor need we attach undue weight to the fear that decentralisation will remove the patient farther from his friends Scrutiny of patients' addresses in the wards of any London hospital would, I suspect, show that the transfer of those patients to a hospital in the outer suburbs would bring the majority nearer to their friends These are not very strong objections to raise against the acknowledged advantages to the sick of sunlight, fresh air and quiet And from the point of view of the hospital the advantages are obvious To see this one has only to contrast the spacious structures possible where ample cheap ground is available with the cramped institutions of our large cities In fact the only argument against decentralisation appears to be the inconvenience and possible disadvantages it may have for the consultant

The one point upon which your commissioner and your correspondents seem agreed is that decentralisation of hospitals will require the employment of more whole time officers with the result that consultants, as we now know them, will become of increasingly less importance and perhaps disappear Is the present system of consulting medicine such a fine structure that any great sacrifice would be justified for its preservation? What purposes does it serve in relation to our hospital system at present? It provides free treatment for the sick poor, it provides a body of experts, it is largely responsible for clinical education Could these duties be discharged as efficiently by physicians and surgeons who are not engaged in private practice?

The institution of whole time officers would preserve the tradition of free treatment of the hospital sick The present system of Robin Hood ethics by which private patients are overcharged so that hospital patients may be treated free was perhaps justifiable once, but now it is an anachronism which I think, many doctors dislike Dr Izod Bennett can think of two reasons why medical men enter whole-time service, either lack of initiative or devotion to research He may add a third a distaste for the financial transactions of consulting practice This distaste will, I venture to think be a factor in influencing men to apply for whole-time appointments

The claim that the honorary consultants are the experts of British medicine and surgery is at present largely true That they are not as expert as they might be is also probably true How many of us have seen young men, doing excellent work in advancing medicine, forced to relinquish their investigations by the necessity of devoting their time to private practice? Relieved of this necessity they would have advanced much farther and the whole time posts suggested by your commissioner in removing this necessity can hardly fail to raise the standard of British medicine

And then there is the claim that the consultants are essential as teachers of medicine As the majority of medical students are destined for general practice it is argued that their clinical education should rest mainly with those actively engaged in private practice This argument might reasonably be regarded as a plea for attaching general practitioners to the teaching hospitals, but it is apparent from the use made of the argument that what is meant by private practice is private consulting practice I would question the especial competence of the majority of consultants to enlighten the student on the everyday problems of a general practitioner The consultation is a comparatively rare and unusual aspect of general practice The nearest approach which a consultant makes to the medical life of a general practitioner is when he attends the outpatient clinic, and your commissioner has wisely arranged for his whole-time director to do the same It is true, of course, that the personal problems of private patients differ from those in hospital, but on this point the general practitioner is certainly the expert Apart from these general considerations the view is often expressed that whole-time workers do not give such practical instruction as do consultants engaged in private practice, that they teach students to subordinate history-taking to laboratory investigations I received a part of my training from one of the first whole-time physicians and I am grateful to him for the finest instruction in bedside medicine that I have ever heard One of the most practical and helpful books ever written for the general practitioner is Lewis's "Diseases of the Heart" If this is any indication of the teaching given by the present whole time workers then I cannot see anything but good coming to English medicine from receiving more of it

I am, Sir, yours faithfully,

Nov 22 A PRESENT WHOLE-TIMER

SIR,—It seems to an outsider like myself that it is a mistake to treat the voluntary hospitals as though they were a uniform group of institutions They range from small cottage hospitals, attended by the local general practitioners, to the great teaching hospitals with their elaborate equipment and laboratory facilities and large staff of the highest standing The voluntary hospitals can no longer lay claim to be the principal institutions concerned with the medical relief of the sick poor, most of that work is carried out, and with increasing success, by the hospitals under the control of the various local authorities The voluntary hospitals must justify their existence on quite different grounds

An essential preliminary step is for the teaching hospitals, both undergraduate and postgraduate, to dissociate themselves immediately from the others, who will survive or go under on their merits The teaching hospitals, as everyone recognises, render an indispensable service to the country by training doctors and nurses and by being responsible for most of the significant contributions to medical research They should be regarded as what they are, namely university hospitals The medical schools of this country receive very considerable grants from the Government because it is admitted that medical education cannot be self-supporting Similarly, the country must be made to understand that clinical medical education and research likewise cannot be self supporting, and that the institutions in which these vital activities are carried out must receive a grant from a central body corresponding to the University Grants Committee The teaching hospitals would then be maintained from three sources—private charity, payments by patients, and, to the degree that was necessary, government support. I, for one, am not afraid that such government support would necessarily lead to any grave disadvantages. The experience of the universities is that the Government, when making a grant, is only concerned to see that the institution maintains a high standard of efficiency, and is very grateful if others are prepared to bear the burden of detailed administration. Hospital boards would naturally have to be reconstituted so as to diminish the representation of the purely charitable lay element and increase the representatives of the profession itself and of the appointees of the government or other authorities. This proposal would, I think, solve in the fairest possible way the financial problems of the teaching hospitals, which are otherwise bound to become increasingly grave in the future. I do not believe that charitable support will be withheld because of the government help. The universities and medical schools are constantly receiving endowments from benefactors in spite of, or because of, the fact that they are also subsidised by the Government.

The other problem is that of organising the work of the teaching hospitals. I am a little pained to find running through your correspondence the suggestion that only the third-rate man is prepared to take up whole-time work, and that the whole-time professors of clinical subjects are not making any significant contribution to the advancement of knowledge. Both statements, in my opinion, are unfounded. We know that, in the sciences, men of the highest intellect are willing and anxious to hold full-time appointments which give them security of tenure together with adequate opportunities for research. Is it suggested, for example, that the whole-time professors who constitute the major part of the membership of the Royal Society are not equal in calibre to the part-time consulting staff of the voluntary hospitals? It is becoming increasingly evident each year that most of the important contributions to medical research in this country are being made by whole-time workers in teaching hospitals, municipal hospitals and laboratories; this can be confirmed by reference to the medical and scientific journals. I naturally have many contacts with younger men who may be expected to attain the rank of consultants, and I find that most of them are not only gravely anxious about their future from the financial point of view, but are embittered that, during the best and most formative years of their lives, they should be prevented from full access to suitable clinical material which might enable them to make their mark. Instead, they have to fritter away their time in coaching or attending remote outpatient clinics or odd sessions at a clinic until their private practice grows to an extent which will maintain them. Many of them would welcome increasing opportunities for whole-time medical service. I am not suggesting that the voluntary hospitals can or should dispense with the brilliant men who constitute their consulting staff, but I feel that it is both inevitable and desirable that an increasing proportion of the work of these hospitals should be performed by men on a whole-time paid basis.

I am, Sir, yours faithfully,

SAMSON WRIGHT.

Middlesex Hospital Medical School, Bristol, Nov. 21.

SIR,—The hospital scheme outlined in THE LANCET on Oct. 28 is most interesting, and will doubtless receive the expert consideration which it deserves. From the general practitioner's point of view the scheme appears to visualise the extinction of the cottage hospitals. Quite apart from the actual relief of suffering which they afford, cottage hospitals are the real "lebensraum" of the G.P. Around such a hospital the level of general practice inevitably rises. It attracts men of higher qualifications to the neighbourhood and tempts others to raise their status. In our small locality our hospital, with 32 beds, numbers 3 F.R.C.S. and 1 M.D. among its staff, and perhaps the ablest are not among these four. I think that our results will bear comparison with those of most large hospitals.

With one class of patients our results are probably superior to those of the big hospitals—that is, with old people. Old trees will not stand transplanting, and neither will old men. Put them in their local hospital, where they are surrounded by patients they know and can be visited freely by relations they love, and it is amazing what surgical and medical catastrophes they can have and yet survive. Their two great risks are that the nursing staff may try to ape the large hospital and insist on tidy beds, strict routine and too much cool air, or that the relatives may show their concern as they realise that recovery may involve some trouble for themselves. Both misfortunes are fatal. In fact cottage hospitals have an entirely different function and technique from large hospitals; they will in no sense be replaced by outpatient clinics with a few beds in charge of an inexperienced houseman and visited at intervals by an honorary, or by the larger units envisaged by your commissioner. In them the patient gets the utmost of attention with the minimum of upset of his normal life.

Loss of the hospital is by no means compensated by the possibility of an expert opinion. The present-day consultant seldom sees a patient except under the influence of two strong forces—hospitalisation and the aura of the specialist. For some patients these two influences alone are enough to cause a cure, but if this is not so the reactions of the patient are usually very different from those with his own doctor; hence patients sent to hospital for diagnosis not infrequently return with the report that nothing abnormal could be found. Diagnosis and treatment of the patient as a whole can as a rule best be done by his own doctor in circumstances as near normal as possible, and it demands the addition to the facilities at his disposal, not their curtailment. The cottage hospital is beginning to supply this requirement and is developing a generation of practitioners who are almost of sub-consultant status; this is as potent a cause as that noticed by your commissioner (the growth of group practitioner firms) in diminishing the demand for consultant services. Indeed these practitioners are in direct line with the great consultants of the past who nearly all had some private practice of their own as well as their hospital and consultant work. The pure consultant may be necessary but is an unfortunate hyperbole; in an attempt to be scientific, touch with some of the elementary facts of existence has been lost.

That part of the scheme which concerns the cottage hospital and the G.P. seems to the latter to be officially inspired, specialist-minded and blind to the most hopeful development of modern medicine and the teaching of Sir James Mackenzie. It puts back the G.P.'s clock to where it was before the great war. It will bar the study of man as he is in favour of minute dissection in hospital at the hands of specialists in totally abnormal circumstances, and will reduce the G.P. to the level of a glorified clinical clerk. Resuscitation of the consultant should not be at the cost of asphyxiation of the G.P. Appreciation of the magnificent work of the specialists and the large hospitals should not blind us to the humbler but no less striking advance that is going on outside If the specialist represents the science of medicine, the G P largely represents the art, and true medicine like true living demands the recognition and synthesis of both In this synthesis the cottage hospital seems fitted to play a most important rôle

I am, Sir, yours faithfully,

Winsford, Cheshire Nov 23   W N LEAK.

SIR,—That something must be done about the hospital problem seems certain and your commissioner has at least produced constructive proposals To have two competing hospital systems as Dr Dyke points out seems absurd, but it appears from your correspondence columns that many distinguished persons do not regard your commissioner's plan as ideal

I agree with your commissioner that a system of coequal firms and heads of departments, as in so-called voluntary hospitals, is essential and that it would be a disaster to medicine if the method of staffing used in municipal hospitals became universal In discussing the hospital system many people are apt to think entirely in terms of bricks and medical officers They forget that what is best in the long run for medicine is best for the patient. A hospital staff which never sees private patients, as in our municipal hospitals, is as badly off as in continental hospitals where only the very few have this privilege To shut a man up where he is on a pinnacle and a complete autocrat is good for nobody

Much as I admire your plan I am sure your commissioner cannot be fully aware of what a need is met by private consultants in the provincial town Speaking of a place that I know, *I am certain that* hospital work has the first claim on a consultant's time Personally, I think hospitals should be regionalised and staffed as your commissioner suggests but that all physicians and surgeons and heads of departments should be allowed to do private practice

In conclusion I should like to say that your commissioner has performed a valuable duty in calling attention to the shortcomings of our hospitals and in providing what he thinks are the remedies It only remains at a later date for the ideal plan to be worked out Or are ideal plans always doomed to failure?

I am, Sir, yours faithfully,

Plymouth, Nov 20   ERIC WORDLEY

SIR,—Your correspondent signing himself "Last Ditch" is right No idea can survive much organisation, which is apt to bring about the very antithesis of its original impulse One need not seek far for examples The dignity and fitness of trade by barter has been destroyed by organised commerce, so that instead of folk being short of commodities because there are not enough of them, they are short because there are too many The founder of our religion taught followers to love their enemies, Constantine organised that religion and now we are taught to kill our enemies The impulse to create music for themselves has gone from most people now that music is nationally organised on the wireless Organised patriotism produces nationalism, organised food production destroys the fun of eating, and organised travel the fun of adventuring

It seems as though the essential power of a man or an idea were something that rouses the suspicion of those lacking inspiration, who thereupon contrive an organisation in order to stifle it Certainly, organisation makes for greater (statistical) efficiency, the difficulty is that such efficiency is attained by sacrifice of the inward spirit, and that is too heavy a cost to pay In the case of our own profession, a sturdy individualism is required for purposes of healing, a sense of humour and a fine understanding of the arts and literature Such qualifications languish in the official atmosphere Surveying your correspondence column, I rejoice to think that the last ditch will be manfully guarded

I am, Sir, yours faithfully,

Hove, Nov 19   D A CROW

THE E M S

SIR,—We should like strongly to commend to the favourable consideration of all officers working in it the changes in organisation in the E M S as explained by the Minister of Health last week The new conditions are the result of prolonged negotiations with the Ministry, and although inevitably they are in some points a compromise we believe them to be a substantial improvement upon the old In particular it is to be hoped that the more favourable terms for part-time service will induce many whole-time officers to transfer to part-time and so make their skill and experience available to the general public, instead of being to a large extent wasted as they are at present Individual cases of hardship and inconvenience there are bound to be, but we are confident that these will be borne with the public spirit which has always characterised our profession

May we take this opportunity of referring to another matter? There is a suspicion amongst some doctors that the Ministry of Health may be proposing to use the E M S as the thin end of the wedge for a post-war State medical service We can assure such, on the highest authority, that nothing in further from the Ministry's intention and that all such fears are groundless It may well be, of course, that after the war economic conditions may make some form of assistance to the voluntary hospitals, by grants-in-aid or otherwise, necessary, but that the voluntary system will continue there is no reason to doubt

We are, Sir, yours faithfully,

ROBERT HUTCHISON,
HUGH LETT,
Nov 27   WM FLETCHER SHAW

SIR,—The Minister of Health's scheme of reorganisation for the Emergency Medical Service was announced by him in Parliament last week and published in detail in the medical press In general he has accepted the proposals of the Central Medical War Committee as elaborated and negotiated by a special committee set up for the purpose. This special committee of the Central Medical War Committee, now known as the Advisory Emergency Hospital Medical Service Committee, includes not only members of the parent committee but representatives of the three Royal Colleges, including their presidents, London and provincial group officers and representative practitioners actually enrolled in the service

It is, in the main, the profession's own scheme which the Minister has adopted Its four cardinal points are

(1) The creation of a definite establishment of whole time, part time and sessional appointments

(2) The creation of part-time appointments at £[illegible] a year for practitioners of consultant and specialist rank

(3) The substitution in a large number of hospitals of the payment per occupied bed method of remunerating medical staffs for the sessional method already in operation

(4) The recognition of the advisory emergency hospital medical service committee of the Central Medical War Committee as the body to be consulted by the Ministry of Health on questions relating to the Emergency Hospital Service.

It is not always easy to adapt a large service to the rapidly changing conditions of war. I do, however, believe that the reorganisation now being effected represents a substantial advance which is in the interest of the Government, the profession and the community generally. As chairman of the Central Medical War Committee I commend the proposals to the profession.

I am, Sir, yours faithfully,

H. S. SOUTTAR,

Chairman, Central Medical War Committee;
Nov. 28. Chairman of Council, British Medical Association.

THE CONSCRIPTED PSYCHOPATH

SIR,—In your issue of Nov. 4 you kindly inserted a letter from me calling attention to the fact that men were being enlisted who were likely to have a nervous breakdown early in their military career. Four letters have since been published on this subject, two in your contemporary and two in your own journal. I have received twenty letters, and I have had several conversations with doctors in a position to know the facts. I have also heard of some old patients of my own whose laboriously acquired stability has been broken down by a few weeks of service. I think therefore that there is a problem.

A Chairman of a Board wrote to THE LANCET on Nov. 11 to ask if I could tell him how to recognise these patients in a few minutes. I do not think that anyone could tell him how to do that. He says that examiner No. 1 has 6½ minutes to test the vision, to examine the nervous system and to take a complete medical history. As there were still 18½ minutes left distributed among other members of the board for the rest of the body, I feel that No. 1 has a grievance. It is not always easy to get a good psychiatric history in a single interview no matter how long it is. Your genuine neurotic is not always a person who is expansive at the first interview. He is not always a person who will buttonhole all and sundry about his health. There are such, but there are also many who are ashamed of their neurosis, who will try to conceal it, who will not own up till they really get to know the doctor. This kind will certainly not tell their troubles to a board. The difficulty should, however, be got over without much trouble. Every person in this country has a doctor. It would be very easy to arrange that every recruit should bring a short note from him. This would say that the person was never ill, or that he was always falling ill or something in between. The doctor who has had someone on his list for years might surely be trusted in this matter. He is the one person who really knows the history. Unfortunately the patient whose case stimulated me to begin this correspondence brought such a report from his doctor, but it was ignored, and I have been told of others.

The admission of unsuitable persons is not, however, merely a question of the neuroses. In a hospital which I visited lately there are patients returned from France with grave organic diseases such as general paralysis and disseminated sclerosis, in addition to several cases of severe neuroses and even psychoses. It is true that these were reservists who had been called up, and therefore the responsibility does not rest with the boards. It would seem that the investigation into these cases also had not been searching enough. As a practical attempt to meet these difficulties I would make three proposals.—

(1) Real histories could be got without difficulty.

(2) It might be a good thing if hospital physicians were chairmen of the boards. There are many of these in cold storage. From their long experience in outpatients they have acquired special facility in spotting quickly the people who are likely to have something wrong, the people who should be set aside for further consideration.

(3) For some of these a specialist assessor should be available—psychiatrist, aurist, neurologist.

I should like to call special attention to Prof. Millais Culpin's letter on Nov. 11 which shows conclusively that a large proportion of patients who broke down might have been spotted beforehand, had a psychiatric specialist been available. I think that the same would hold good for early physical cases.

I am, Sir, yours faithfully,

London, S.W.1, Nov. 27. T. A. ROSS.

INDEMNITY FOR LEGAL ACTIONS ABROAD

SIR,—The London and Counties Medical Protection Society has received many requests for some form of indemnity available to doctors practising outside the British Isles. Although membership of the society has at all times been open to these practitioners, the society has not hitherto undertaken cases for trial in colonial or foreign courts. The council has now succeeded in arranging for an indemnity against actions overseas. This will be available to members on payment of an additional subscription of £2 per annum and will be for a maximum of £1000 in any one case or £2000 in any one year. Under the new scheme the society has made arrangements with Lloyds, whose organisation is world-wide, for cases to be dealt with locally after receipt of the member's application and its consideration by the council. Arrangements have also been made for dealing expeditiously with urgent matters. Full details will be sent to any practitioner who is interested.

I am, Sir, yours faithfully,

GEORGE F. STEBBING,

London, W.C.2, Nov. 22. Chairman of Council.

MEDICAL LITERATURE

SIR,—I was much interested in the fascinating report of Sir Robert Hutchison's lecture on "Medical Literature" in your issue of Nov. 18, especially in his remarks about medical textbooks. As a student, now nearly qualified, I have read a fair number of these textbooks. What a comparison they offer in style and readability! Students are prone to read what appeals to them in medicine as in other subjects. How anyone can read through a tightly-packed volume of small print with no pictures to illuminate the text I don't know. Good illustrations may convey as much as whole paragraphs of print. In the introduction of his "Pathology" Boyd says, "A speaker, whatever his subject, must keep his audience in mind, otherwise he is lost. Nor can *the writer* afford to forget this elementary truth." That puts the success of medical literature in a nutshell. Just as in the realm of commerce the good shopkeeper studies effective window-dressing, so the medical writer should cultivate the art of literary window-dressing.

I hope Sir Robert Hutchison's remarks will bear fruit.

I am, Sir, yours faithfully,

J. B. GURNEY-SMITH.

St Bartholomew's Hospital, E.C.1, Nov. 20.

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By MEDICUS, M P

ON Thursday Nov 23 the fourth session of the thirty seventh Parliament of the United Kingdom of Great Britain and Northern Ireland came to an end and was prorogued to Tuesday Nov 28. The last part of this session from Sep 1 until its end has witnessed the tremendous spectacle of Britain and the whole Empire moving into war because of a challenge given to us when Germany invaded Poland. In the words of the King's speech "This new instance of German aggression and bad faith was a challenge which we could not have declined without dishonour to ourselves and without peril to the cause of freedom and the progress of mankind" The war has not, as yet, developed along the line of mass air-attack, largely perhaps because we have been ready to meet it. The tremendous redistribution of the population brought about by the Government's acceptance of the policy of evacuation of large numbers of the civil population from the towns to the rural or semi rural areas has created a new situation in our country. Although many women and children have returned from the reception areas to their homes, very large numbers still remain away from the big cities and industrial areas. How far this redistribution will have permanent effects cannot yet be estimated with accuracy, but that it will have a great permanent effect can hardly be doubted. Two of the main effects of this transfer of population are (1) the demand for increased social services in rural areas such as educational and medical services, and (2) the demand for improved amenities such as water-supply, public lighting and, later on, inevitably increased housing accommodation. A break has been made in the century old tendency to move from the country into the town which will be strengthened by the demand for increased production from the land due to war needs.

* * *

The spot-light thrown on poverty conditions in urban areas was well exemplified in speeches made on the last Tuesday of the session when Scottish education and evacuation were discussed in the House. Many Members of Parliament and many more people outside Parliament have had their attention drawn forcibly to existing evil conditions. As one M P put it in the debate "All of us were struck by the fact that their health was not as it was expected to be, nor were their habits as clean as many people expected" This Member seemed to think that our child-welfare and school medical service had been very deficient. The fact is, of course, that the actual service rendered by the medical and nursing services in these departments has been one of the major influences leading to an improvement in child health, as is clearly shown in the reports of the chief medical officer to the Board of Education. But it is refreshing to have pressure being put on *local authorities* and the Government by the Members to increase these services and to improve them, for that in effect is what the criticism involves. The carrying out of evacuation has been a nation wide propaganda for improved medical and nursing services to bring about improved child health. Another point made in the debate was "You have brought into the country a large number of children and our hospital accommodation for infectious illness is very limited in the country districts" Mr Joe Westwood, who opened the debate for the Labour Party, and who is himself an authority on local government in Scotland and on medical administration, said that evacuation had disclosed serious defects in our health services, and that many, as a result, were "converts to the need for improved health and clinical services for our school population." Mr Westwood referred to the success of "community feeding" in Tillicoultry and Alloa and welfare work at Kilsyth and hoped that the development of this work in other areas would be encouraged. Reference was also made to the hospital problem and particularly the evacuation of patients from the hospitals. These difficulties, which have been very much present in the minds of the medical profession, have been met to some extent at least by the announcement on new medical arrangements made by the Minister of Health.

* * *

The Secretary of State for Scotland (Mr Colville), in stating the Government's view on evacuation and its problems, gave some interesting figures. There were about 500,000 people in the priority classes in what he called the "sending" areas (a much more manageable word than "evacuating") but only 175,000 took advantage of the Government scheme. Of the unaccompanied children some 60 per cent are still in the reception areas but the drift back has differed in volume very much in different areas. Thus of the mothers and children who went out from Dundee 74 per cent have returned, but only 21 per cent of the unaccompanied children have returned who went from Edinburgh. Counties which retain 80 per cent of the unaccompanied children—that is the children who went out under the auspices of the school organisation—are Kinross Midlothian, Nairn, Peebles, Clackmannan, East Lothian, Inverness and West Lothian. In Angus, Argyll, Perth and Wigtown the percentage remaining is under 50. If the Secretary had said from which "sending" areas the children in these counties came the differences might begin to be more readily understandable.

Mr Colville spoke also of the casualty services and said that 12,000 beds were available which could be increased at short notice to 14,500, and that the programme of extension was working up to 31,000 beds including 10,000 in hutted hospitals or hutted annexes. These hospitals are to admit all persons (civilians) "who may fairly be said to be in urgent need of institutional treatment"

The debate was finally wound up by the Under-Secretary for Scotland, but by that time so many points had been made that it was almost inevitable that the speech should be crammed with many details. The habit of the two front benches exchanging news and criticisms in the early hours of a debate has advantages in days of blackout and B B C news bulletins but it does not give the opportunity for a large-scale survey at the end as has been the custom. And this is hardly because the House is tired for after the Scottish evacuation debate Mr Mander, urbanely indefatigable, raised a question on the Government's attitude to the League of Nations. Mr Noel Baker spoke for the Labour Party, and it was not until "five minutes after eleven o'clock" that the Under Secretary for Foreign Affairs (Mr Butler) brought the debate to a close. He spoke of the League as one of the greatest organisations ever built up in the long history of human endeavour from the beginning of which we may yet build up a true method of securing international cooperation.

• • •

It was on the last day of the session, Thursday, that the Minister of Health made his statement on the scheme which will enable specialists at present employed whole-time in the Emergency Medical Service to engage in other work. But this was coupled with the proviso that they may be required to undertake work under "air-attack conditions" No-one yet knows what possibilities of air-attack we may have to face, and the return to the towns of the children in the reception areas is not encouraged by any Government authority.

FROM THE PRESS GALLERY

Evacuation and Hospital Services in Scotland

IN a debate on educational, evacuation, and hospital problems in Scotland in the House of Commons on Nov. 21, Mr. WESTWOOD said the evacuation had disclosed serious defects in their health services Many who had previously grumbled at the cost of those services, particularly the school health services, were now converts to the need for improvement. This was one of the problems which could not wait until the war was over; it ought to be tackled now. Further development in the receiving areas of the community feeding so successfully experimented with in areas like Tillicoultry and Alloa would be of real value, while the welfare work done in places like Kilsyth could usefully be initiated in many other receiving areas. Developments of this kind should be encouraged by the Secretary of State and financial provision made to further it. The number of hospital beds in Scotland was by no means excessive even for peace-time needs. The House would like to be assured that substantial progress was being made with the provision of the extra beds that would be necessary if air-raids occurred on an extensive scale As a result of the evacuation of hospital patients there were now thousands of vacant beds in Scottish hospitals, and the greater number of those beds should be made available to people who required them. The large personnel who had offered their services as auxiliary nurses could not be trained because the patients had been sent home from the hospitals, and moreover, those patients could get neither the proper accommodation nor the proper attention in their own homes. They could not continue to expand the great social services on pre-war lines, but those services must not be destroyed and plans must be made now for their development when the war ended.

Mr. COLVILLE, Secretary of State for Scotland, said that on Sept. 23 Scottish schools were authorised to reopen for medical inspection and treatment. In the reception areas, all the available schools were now open and arrangements had been made for the education of children whose schools had been requisitioned for other purposes In the evacuated areas several of the secondary schools were now open and work was going on to enable other schools, including the primary schools, to reopen where this was at all practicable. Although a considerable number of the evacuated children had gone back, the teachers and children who remained were settling down in their new environment. The children were definitely gaining in health from the regular hours, sound sleep, and good food they were enjoying in the country. The new interests that country life had brought to the city child might stand him, and the nation, in good stead in future years Reports spoke of the quickening effect on the country child of association with the city child. The understanding between town and country, which they had all worked for over many years, might have been brought much nearer by this social upheaval. In the reception areas communal feeding was being developed, though in some districts there was a prejudice against it. Supplies of milk under the milk-in-schools scheme had been available throughout. The lack of the usual distributing centres—i e., the schools in session in the sending areas—had militated against the operation of the scheme for children who had not been evacuated, but with the reopening of schools it was hoped shortly to resume the milk-supply. In all the other areas where the scheme was in operation before the outbreak of war, it was continuing, although, because of transport and other difficulties, on a reduced scale. Taking Scotland as a whole about 50 per cent. of the people evacuated had come home up to the present time, but 60 per cent of unaccompanied children were still retained Unaccompanied children had settled down much better than mothers with children There had been a good deal of exaggeration in the accounts of the condition of the children on arrival in the reception areas, and this had created a quite unwarranted prejudice against the scheme But there was no room for complacency; far too many of the evacuated children were dirty and badly trained. The success of evacuation could only be achieved by the successful solution of innumerable individual human problems. The local authorities and their officials had done magnificent work, but the solution of these individual and human problems did not lie in the hands of the Government or local authorities. They must rely on the devotion, the patience and the good sense of ordinary men and women, and he believed that they would not rely on these qualities in vain. (Cheers.)

Mr. COLVILLE assured the House that they were making real progress with their emergency hospital service. They had secured for the treatment of casualties some 12,000 beds in existing hospitals, and that number could be increased at short notice to 14,500 Adaptation of mental hospitals and three large hotels should give them in a few months some 5100 additional beds; and hutted hospitals and hutted annexes that were being built would give them 10,000 more. All in, the programme would give them some 31,000 beds. The needs of the ordinary sick and the special war-time problem of military cases were not being overlooked. Hospitals included in the scheme would be expected to admit all persons who might fairly be said to be in urgent need of institutional treatment The additional hospital accommodation would be available for the ordinary sick if they could not obtain treatment elsewhere. Army personnel in urgent need of institutional treatment were admitted to hospitals in the emergency service in the same way as civilians In addition, arrangements had been made in Scotland for the accommodation of 500 Army sick who required light hospital treatment which could not be afforded in hospitals under the control of the military authorities. The patients were being admitted, in the main, to base hospitals on the understanding that they would be evacuated as rapidly as practicable if the hospital beds were required for the purposes of the emergency service.

QUESTION TIME

The E M S. Agreement

Dr HOWITT asked the Minister of Health if he was now in a position to state what action he proposed to take with regard to the proposals made to him by the representative committee of the medical profession about conditions of service in the Emergency Medical Service; and whether he anticipated that specialists would now resume their work for the civil population at the general hospitals —Mr ELLIOT replied: I am glad to be able to announce that I have agreed with the committee in question upon a scheme which will enable specialists at present employed whole-time in the Emergency Medical Service to engage in other work, whether at general hospitals or in private practice Under the scheme there will be attached to certain hospitals part-time specialists and consultants at a salary of £500 a year, which will cover not only the part-time work required at present but also any additional work appropriate to their grade that may be required by the circumstances In other words, this salary will cover present conditions and also air attack conditions My agreement with the committee also secures that the arrangements for providing medical services of all kinds for casualties shall be adapted to the varying types of hospitals so that there may be the minimum interference with the ordinary medical work of the hospitals

Dr. **Howitt** Would the Minister make arrangements for an adequate return of nurses and hospital almoners to carry out the work of the hospitals ?—Mr **Elliot** I trust that as the work of the central hospitals extends it will be possible to secure the return of adequate staff.

Pay of House Officers

Sir **Percy Harris** asked the Minister what salaries and allowances were paid by the Ministry of Health to house physicians and surgeons appointed to hospitals organised for war time service on the outbreak of war, how this compared with rates of pay in voluntary hospitals, and whether there had been any alteration of these salaries and allowances since the beginning of the war —Mr **Elliot** replied The basis of employmen in the Emergency Medical Service of house officers was at the outset £350 per annum, normally on a three months contract plus board and lodgings or an allowance in lieu This flat rate was somewhat in excess of the rates paid by voluntary hospitals, though these vary widely according to the type of hospital. This arrangement has now been reviewed, and it has been agreed with the advisory committee with which I have recently been in consultation that no further individual enrolments of house officers in the Emergency Medical Service should be made, but that hospitals should receive a payment equivalent to £200 per annum for each of their house officers who are required for whole time work under the emergency hospital scheme The precise allocation of this payment, however, will be a matter for the hospital authorities.

Sir P **Harris** Can the Minister give an assurance that he is doing nothing to undermine the great London voluntary hospitals ?—Mr **Elliot** Certainly We are working in the closest possible consultation with the voluntary hospitals

Sector Hospitals

Mr **Isaacs** asked the Minister if he was satisfied that the equipment and organisation of the sector hospitals were adequate for the numbers of patients they were prepared to receive —Mr **Elliot** replied I am satisfied that the majority of the sector hospitals are adequately provided for the number of patients which they are intended to receive, but in several of them the equipment and organisation need further improvement I am making all possible use of the present period of quiescence to this end.

Mr **Graham White** asked if the war time organisation of hospitals in the London sectors was of such a character as to enable medical officers to be liberated from financial and general administration and free to concentrate on arrangements for treatment of patients —Mr **Elliot** replied Yes, Sir, so far as may be, but it is not of course possible to separate medical officers entirely from general administration.

Municipal and Voluntary Hospitals

In reply to Mr **de Rothschild**, the Minister said that the hospitals in the London region which had been increased in staff and equipment under the Emergency Hospital Scheme were mainly municipal, because such hospitals had necessarily to be sought in the outer part of the region where there were comparatively few voluntary hospitals capable of expansion. I believe, he added, that all those voluntary hospitals in the outer area that are capable of satisfactory expansion have been expanded

Outpatients

Sir **Ernest Graham Little** Is the Minister aware that last year there were over 10,000,000 attendances in the outpatients department of the hospitals and that all this service is now in abeyance, causing very great dislocation in the London area and would my right hon. friend not only make a note of that fact but keep in mind the necessity of getting teachers for the medical students ?—Mr **Elliot** I would be unwilling to accept the suggestion that the outpatient services have been in abeyance for London hospitals for 10 weeks, because it is quite at variance with information supplied to me by London hospitals

Sir E **Graham Little** Does the Minister realise the suffering such dislocation causes and that it is impossible to conduct satisfactorily outpatient departments without the honorary staff who cannot be properly replaced by junior and inexperienced officers ?—Mr **Elliot** The higher the medical skill which can be obtained by the outpatient departments the better, but to suggest that the service is entirely in abeyance is not only going beyond the facts but discourages people from applying, which is undesirable

Women Doctors in the Services

In reply to Lieutenant Colonel **Mason**, Mr **Hore Belisha** said that three women doctors had been appointed to the Royal Army Medical Corps for medical duties with the auxiliary territorial service

Sir **Kingsley Wood** said that the appointment of a limited number of women doctors primarily for duty with the Women's Auxiliary Air Force was also receiving consideration

The Sex Bar

Captain **Elliston** asked the Minister of Health whether he would advise local authorities that at least for the duration of the war, it was desirable to suspend any regulation which required women medical officers to vacate their appointments on marriage —Mr **Elliot** replied This matter is one which is within the discretion of each local authority, and I do not consider it necessary at present for me to take any action

Unemployment among Nurses

Mr **Rostron Duckworth** asked the Minister whether his attention had been called to the large volume of unemployment among nurses, and whether there was any reason at the present time why fully trained nurses should be suffering from the lack of suitable posts —Mr **Elliot** replied I have received representations to the effect indicated in the first part of the question As regards the second part of the question I understand that some public health and other hospital authorities and some nursing homes have, owing to a reduction in the number of their patients, dispensed with temporary nurses who have hitherto been employed to supplement their regular staff. It may also be that persons or families who might previously have employed private nurses are, for financial or other reasons, not now doing so Apart from these causes I know of no reason why fully trained nurses should be suffering from the lack of suitable posts

Asked by Mr **Harvey** whether partially trained auxiliary nurses were receiving salaries for hospital work, Mr **Elliot** replied I do not think the unemployment extends to the permanent staffs of hospitals, but in any case the responsibility for staffing rests with the hospital authorities concerned No substantial number of nursing auxiliaries are undertaking hospital work.

Evacuation of Expectant Mothers

Mr **Brooke** asked whether facilities for the evacuation of expectant mothers continued in existence, and, if so, what steps were taken to make known how and where they could register —Mr **Elliot** replied I have authorised evacuation authorities through the department's senior regional officers, to arrange for the evacuation of further parties of expectant mothers to receiving areas where suitable billeting and maternity accommodation is available It is for the evacuation authorities to decide in the light of their experience what steps they consider suitable to make known to expectant mothers in their areas the facilities which are available

Value of Dates as a Food

Mr **Higgs** asked the Chancellor of the Duchy of Lancaster whether he would consider unrestricting the import of Tunis dates, in view of their high nutritional value and their exportation from French territory —Mr W S **Morrison** replied The matter is under consideration

. . . . IN ENGLAND—NOW

(FROM OUR PERIPATETIC CORRESPONDENTS)

FOR many of us this is the second time our normal lives have been disrupted and scattered to the four winds never again to form the same whole. I suppose it is no bad thing once in a lifetime to be caught up in a gigantic machine and made to feel very small fry indeed; to be known by a number rather than a name; to be subject to long periods of complete inactivity relieved, perhaps, by short periods of gross overactivity. It provides an opportunity to assess one's object in life, one's aims and directions. But surely once is enough. The trouble is that it goes on too long Four years was a long time in which to think. The conclusions, the personal ideals, the visions of the future got very dim and foggy and blurred before the end came. So when the end did come there was a feeling of relaxation, not of inspiration. Instead of saying to myself "Now let's get on with the job" I said "Now let's have a rest" A rest from what? I didn't need a physical rest I had endured no great physical hardships. I had an easy war. And now it has all come back again. Here am I Somewhere in England divorced by 150 miles of very dull country from my wife, my family, my work, my home. my hobbies, my interests—and not a hand's turn of anything to do. I find little comfort in repeating to myself, Those also serve who sit and wait I prefer sitting to standing. Who am I serving by sitting in this most unpleasant makeshift laboratory getting colder and more ill-tempered each day? The poor old British Public? Do they really want me to sit here doing nothing at their expense? They may be stupid, but I don't believe they are as stupid as that

One thing about war is that it makes you acquainted with bits of country of which you previously had little knowledge. Last war I got to know some very funny bits of Scotland. It is fortunate that I cannot say where I am now, because it is a bit of land doubtless dear to some. That I am not one of those is my misfortune, but hardly my fault. It is on the drier side of Britain, but it is raining now with a determination surely unsurpassed by any place on the wetter side. It has in fact been raining for the past three weeks without intermission except on two occasions when it decided to snow. Let me give you a brief description of this laboratory. The walls are made of cardboard and windows, with warped weather-boarding outside. There are 92 windows in an area of about 90 feet by 25 feet. There are 12 sinks without plugs and the wind whistles up the vent holes as if a mechanical blower were fixed to them. The roof is thatch The local inhabitants tell me with apparent pride that the winds here come unmolested from the North Pole. Anyway they find little to check their course in this laboratory. Inquiries about heating elicited the fact that paraffin is not rationed as long as it is used for agricultural purposes. As my work is reputed to be bacteriology I felt no qualm of conscience. I am trying the ordinary paraffin stove shaped like a cylinder according to immemorial convention. The only place where any heat comes out of this contraption is at the top. Accordingly by sitting right over the top the upper part of my body gains a little painful feeling, whereas the lower part remains persistently senseless. The temperature this morning when I arrived was 7° C., so I went back to the general shop to see if nothing more effective existed for heating. A brilliant inspiration on the part of the shopman suggested that I might try a church heater. So a church heater it shall be, and what could be more appropriate?

Is this really such a woebegotten place as I make out? Of course not What of the bracken-covered hills with all the soft reds and browns and yellows and purples; what of the rolling sand dunes; what of the birds and beasts and fishes? Peaceful they are and comforting But I am perverse. I do not wish to be peaceful—here. I do not wish to be comforted—here. I have been forcibly taken from my peaceful life at a moment's notice and told to be warlike. In this invigorating air I am bursting to be warlike, but I cannot make war on bacteria in the bracken. All my energies must go on viciously filling in forms in triplicate for apparatus I shall probably never use.

What a lot evacuated children are blamed for. I know that many of them arrived in their country homes with little things in their hair and perhaps elsewhere. But they were "little things." Yesterday I was in the next laboratory to mine and was shown a specimen which has just arrived for identification. It was not clear exactly which piece of evacuee provided it. It was a queen hornet.

* * *

When I came down to the country at the end of September I found twenty young patients in the hospital, but evacuated children were nobody's baby just then. No-one knew what illnesses they would get and few of the people I talked to seemed to care. I prayed for a plague which would rouse the authorities, and when there was no plague, I settled down to wait for bronchopneumonia and 1940. But gradually the authorities—mystic word—have been showing that they are interested, and we have been convinced that there really were many administrative difficulties to be overwhelmed before a county institution—which still has to care for mental defect, parturition, old age and heart failure in the locality—could be converted into a first-class children's hospital. So more wards have been opened; dispenser, masseuse, surgeon, dentist, oto-rhino-laryngologist, and ophthalmologist have been appointed, while rooms are prepared for X-ray apparatus and rumour prophecies the miraculous appearance of a path. lab Not to be outdone I lent a few essential instruments, my wife donated a hairpin when an aneurysm needle was needed, and Matron spent the remains of her savings in buying small enamel chambers from Marks and Spencer.

We are getting the ordinary run of children's diseases, and it is already interesting to speculate on the effects of rustication on London children. We have two children with rheumatic heart disease who broke down soon after the move. I have seen no chorea, but enuresis has become a national problem. We have admitted some of the more trying examples: one becomes extraordinarily embarrassed if his billet is mentioned and has no incontinence here; another is an obviously homesick affectionate little girl separated from her mother and her brother; others regard bedwetting as an ordinary habit or an amiable eccentricity. As a child in my brother's village put it to a farmer's wife: "You have taught me your manners." (This girl wetted the bed for the first three nights. The foster-mother said to her: "If you wet the bed again you won't go to Mrs. Soandso's party and what's more I'll tell Mrs Soandso just why" She went to the party.)

Many children, on a mixed diet instead of tea and bread-and-butter, with baths, often new clothes, and clean air, look immensely better and are obviously enjoying themselves The country people have never seen scabies and head lice before—that is their story and they are sticking to it. The practitioner with whom I am staying had seen no diphtheria for several years, but has had several cases, mostly in the indigenous inhabitants, in the past few weeks. The most fruitful contributors to the hospital have been the baby nurseries of one sort or another, who have found themselves sharing the stately homes of England with the Sonne dysentery bacillus. Whooping-cough has infested some of them too, and we have had to set aside a special ward for the treatment of whooping-cough contacts who have dysentery, pyelitis and bronchopneumonia

Methods in the hospital are much the same, if you allow for a multitude of improvisations of equipment, as in a London children's hospital. We keep the

Continued at foot of opposite page

OBITUARY

CHARLES JOHN BOND

CMG, FRCS, FLS, HON COL IMS

Frank Brown Leicester

Mr C J Bond died at his home in Leicester on Nov 23 at the age of 83 His life had been a long and full one After receiving a public school education he became interested in agriculture before ever he thought of medicine, for which his bent was such that he obtained nearly every gold medal available at University College Hospital Returning to his native county he early secured a position at the Leicester Royal Infirmary where he shared with Sir Charles Marriott the credit of introducing Listerian methods into surgical practice But at heart he was all his life a biologist and it was only three years ago that he enunciated what he felt to be a consistent interpretation of the whole of human experience It was in the make-up of the man that he was not content with observation and treatment, even of a high order, but must go back and back to root principles He took his place naturally on the Medical Research Council, the Industrial Fatigue Research Board, the departmental commissions on blindness and cancer the Trevethin committee on the prevention of venereal disease, and finally as vice-chairman of the medical consultative council to the Ministry of Health Nearer home he represented his ward on the city council, was the guiding spirit of many philanthropic institutions and bodies, and received the freedom of the city His interpretation of human experience suggested to him that, while the actions of elementary particles are free and at random, as complexity increases a common-sense relation of cause and effect prevails Finally in association with life and mind random action comes to be controlled by the organism rather than by the environment, and we reach volition and purposive behaviour This rather close rendering of his own words may help to illustrate to those who did not know C J Bond the springs which actuated him He has been quite properly described as a great doctor who has fruitfully explored many fields of thought and experiment

A few personal details may be added to fill in the gaps Born in 1856, son of George Bond of Bittersby, Leics educated at Repton and University College, London, he entered Leicester Royal Infirmary as a pupil in February, 1873, later in the same year becoming demonstrator of anatomy at U C L After qualifying in 1879 he was house-surgeon at Bedford and in 1882 at Leicester He became assistant surgeon to the Royal Infirmary in 1886 and was on the active staff till 1912 when he was elected a vice-president and later became vice-chairman to the board of governors He was president of the Literary and Philosophical Society of Leicester 1901–02 and 1935–36 He represented the Medical Research Council on the inter-allied commission on the treatment of war wounds, Paris, 1916–18, and was associated with the late Lord Moynihan as consulting surgeon to the Northern Command He was awarded the CMG in 1917 He was a member of the Leicester health insurance committee 1913–20 and of the advisory council of the National Health Insurance Committee In 1922 he was William Withering lecturer at Birmingham university His better known works included a chapter in "Health and Healing in the Great State," "The Leucocyte in Health and Disease," "Essays and Addresses of a Surgeon" (Galton Memorial lecture 1928), and "Recollections of Student Life and Later Days" in which he paid a tribute to the memory of Sir Victor Horsley

Mr Bond married Edith, daughter of George Simpson, J P, of Hazlebrow, Derbyshire, he leaves a widow, a daughter, and a son who has followed his father's profession

Dr C Killick Millard writes "By the death of C J Bond the city of Leicester has lost its most distinguished and most beloved citizen I enjoyed the privilege of his friendship for many years I was associated with him on the Leicester branch of the National Council for Combating Venereal Disease and on the Leicester Cancer Committee, and for the last five years in connexion with the Voluntary Euthanasia Legalisation Society which we founded together Few men can have been more loved and respected by his friends Utterly unselfish in all that he did, conscientious in everything he undertook, he was the essence of courtesy, kindliness and consideration for others The guiding principle of his life was love of his fellow-men—how best he could serve humanity He carried modesty about his own achievements almost to an extreme, but for this he [illegible] had he wished it, have occupied an [illegible] prominent position in the scientific world than [illegible] In spite of his advanced years, his mind [illegible] and alert almost to the end, and he [illegible] interest in the many and varied lines of [illegible] which he had been engaged In his [illegible] think it may be said that one of his [illegible] was voluntary euthanasia"

CHARLES THOMAS KNOX

M R C S

Continued from previous page

children in for longer periods, however, as we are our own convalescent home We do what we can with revolving shelters, a fleet of old prams a glass sun-room, and a mercury-vapour lamp The work is at times aggravating but always interesting New problems arise continually to fill the mind when it is not occupied with plans for the immediate future and visions of the more remote peacetime era conjured up by your special commissioner

NAUGHTON DUNN

M.B., LL.D. ABERD.

FOR some months Mr. Naughton Dunn had been in poor health, and lately he had lived quietly at his house near Barmouth He died on Nov 19 in Dolgelly Cottage Hospital His death when, at 55, he should have had many years of useful work ahead, will leave a conspicuous gap in the ranks of British orthopædic surgeons, and orthopædic gatherings at home and abroad will miss his keen mind and twinkling smile

Elliott & Fry

Naughton Dunn was born in Aberdeen in 1884, and was educated at Aberdeen Grammar School and Aberdeen University, where he took his M.B in 1909 After house-appointments at Scarborough and elsewhere he was R S O. at the Royal Southern Hospital, Liverpool. There he caught the eye of Sir Robert Jones, and from 1912 to the outbreak of war Dunn assisted him in his private practice, at the same time demonstrating anatomy at Liverpool University. He was appointed surgeon to the Birmingham and District Cripples' Union—the forerunner of the Royal Cripples' Hospital—in 1913 During the war Dunn served with the R A M C, and was associated with Sir Robert Jones in his orthopædic work among wounded soldiers Since then he had built up an extensive consulting practice in and around Birmingham, and worked with enthusiasm at the Robert Jones and Agnes Hunt Orthopædic Hospital at Oswestry, as well as at the Royal Cripples' Hospital, the Warwickshire Orthopædic Hospital at Coleshill and the Corbett Hospital at Stourbridge. As a lecturer at Birmingham University he proved an excellent teacher. "His skill and judgment as an orthopædic surgeon are well known," writes A G H, "but perhaps his most valuable gift to crippled humanity lay in his power of training the younger generation of surgeons in this work He was a great exponent of Sir Robert Jones's teaching, and as a friend he was true, staunch and lovable, possessing a delightful gift of dry humour." He had a genius for creating friendship among both his contemporaries and his juniors, and as a host he was unrivalled. He gave the impression of being leisurely and deliberate, but in fact he possessed the kind of intelligence that can see several moves ahead In 1937 the University of Aberdeen granted him its honorary LL D. This year he was president of the British Orthopædic Association, and delivered his presidential address on some aspects of bone surgery at the association's meeting at Oswestry in May. He wrote a number of papers on bone injuries, flat foot and kindred subjects in medical journals, and contributed to Robert Jones's "Orthopædic Surgery of Injuries."

Mr. Naughton Dunn married Ethel Violet Jackson, and he leaves a widow, a son and three daughters.

Medical News

University of Cambridge

The following have been appointed members of the committee for medical radiology and electrology for 1940: Dr. G. S. Graham-Smith, Dr. G H Orton, Dr. Ffrangcon Roberts, Dr F. G. Spear, Mr. G Stead, Mr. R Williamson, Dr Peter Kerley, Dr W. P. Philip, Dr. R J Reynolds, and Prof. Sidney Russ, D.Sc

The following have been appointed additional examiners in surgery for the final examination for part I of the M B. degree to be held in December · Mr J B. Hunter, Mr E O. Lindsay, and Mr. M. F. Nicholls

On Nov. 24 the following degrees were conferred :—

M D—J. C F Lloyd-Williamson
M.B., B Chir—John Aspin* and C P. Petch
M.B.—J. W. Landells *

* By proxy.

Society of Apothecaries of London

At recent examinations the following were successful

Surgery—J B Gurney-Smith, A M. McCall, M. F. Smith, and K. Talboys

Medicine—G O C Davies-Webb, R. M J Franks, E A. Griffiths, W. C Heunis, J. N Hunt, and J A Sutton

Forensic Medicine—G O. C Davies-Webb, R M. J Franks, E A Griffiths, W C Heunis, J. N Hunt, and J A Sutton

Midwifery—C E S. Myers and J. P Rochford

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery and midwifery. *W C. Heunis, Lond Hosp , and J. A Sutton, Guy's.*

Reform in Irish Local Administration

Our Irish correspondent writes: The government of Eire has recently introduced to the Dail a measure designed to effect a radical change in the machinery of local government. The County Management Bill, as it is called, provides for the appointment of a county manager in each county or group of small counties, to whom many of the present powers of the county councils will be transferred Each county manager will also be the manager of each borough, urban district, or town governed by commissioners, falling within the county or group of counties of which he is manager. Certain of the powers possessed by county councils and other elective bodies are not to be transferred and are known as "reserved" functions. The most important of these are the powers of making a rate and of borrowing, most of the others being little more than formal Certain other changes forecast in the bill are the abolition of county boards of health and the virtual abolition of the committees of mental hospitals, their several functions being transferred to the county councils, or virtually to the county managers. Hitherto, since the last rearrangement of local administration in 1928, the county boards of health, although nominated by the respective county councils, exercised their functions independently, and controlled the entire health administration of the several counties Similarly, the committees of the mental hospitals had under their control the management of the mental hospitals The bill further provides for the transfer to the county councils of the officers of the bodies which are being abolished, while safeguarding their existing rights

It is clear that the projected change may have a considerable effect on the local administration of health affairs *The popular elective bodies throughout the country* have had little knowledge of and less interest in matters concerning health, and progressive medical officers of health have found themselves hampered by the inertia and opposition of the local politicians If county managers can be found with a progressive spirit, a greatly improved health administration will follow, but as the county managers will have considerable power, bad county managers could do great harm The bill has roused much opposition throughout the country, particularly among the members of the local councils, and as there is reason to believe that even in the government itself there is difference of opinion, it is possible that the measure may not be pressed

Pathological Society of Great Britain and Ireland

The January meeting of this society will be held in the Department of Pathology at Cambridge on Jan 12, and not at Guy's Hospital

League of Nations Health Committee

This committee has arranged to set up a subcommittee which may be summoned in an emergency to deal with epidemics of infectious diseases arising out of the war

Medical Society of Individual Psychology

There will be a meeting of this society at 2 30 P M on Dec 14 at 11, Chandos Street, W 1 at which Dr H Crichton Miller will speak on "Discipline and Leadership in the National Emergency" Visitors will be welcomed

Manchester Royal Infirmary

Six lecture demonstrations on the first aid treatment of air raid casualties will be given by the honorary staff at this hospital this month Particulars of the meetings, which begin on Dec 5, will be found each week in our Medical Diary

South-West London Post-Graduate Association

No meetings of this association will be held until further notice, but members will be welcomed as visitors at the meetings of the South West London Medical Society, which are held at Bolingbroke Hospital on the second Wednesday in the month at 3 30 P M

British Institute of Philosophy

The third of the special series of free public addresses, entitled "The deeper causes of the war and the issues involved," will be given by The Rt Hon Viscount Samuel, in the assembly hall (entrance in Craven Street, Strand) of the Royal Empire Society at 2 P M on Thursday, Dec 7 The series will be continued in January and February by Prof Ernest Barker, Sir William Beveridge Sir Richard Gregory and Sir Richard Livingstone Admission syllabus can be obtained from the director of studies at University Hall, 14 Gordon Square, W C 1

Vacancies

Brighton, Royal Sussex County Hosp—Cas H.S £120

Cape Huguenot University College, Wellington—Professor in chemistry £450

Central London Throat Nose and Ear Hosp Gray's Inn road W C 1—Hon assts in out-patient dept

Chesterfield, Chesterfield and North Derbyshire Royal Hosp—H.S to ophth and ear nose and throat depts and H P, each at rate of £150

Chesterfield Chesterfield and North Derbyshire Royal Hosp—Cas O and fracture H S, at rate of £225

Connaught Hosp Walthamstow, E 17—H P and cas O, each at rate of £110

Derby Bretby Hall Orthopaedic Hosp—Jun res. asst M O £350

Doncaster Royal Infirmary—H S at rate of £150

Dreadnought Seamen's Hosp, Greenwich S E 10—H P s and H.S s each £110

Holt Norfolk Kelling Sanatorium—Jun res M O £250

Huddersfield Royal Infirmary—H S to special depts, at rate of £150

India Women's Medical Service—Four vacancies

London County Council Infectious Hosps—Temp asst M O's (Class I and Class II), £350 and £250 respectively

Mansfield, Harlow Wood Orthopaedic Hosp—H.S at rate of £200

Margate Royal Sea Bathing Hosp—Visiting surgeon for ear, nose and throat cases, honorarium 20 gns

Middlesex County Council—Res cas M O for Central Middlesex County Hosp, at rate of £150

Middlesex Hosp W 1—Hon dental surgeon

Newcastle-upon Tyne, King's College—Demonstrator in pathology, &c £300

New Zealand Cook Hosp, Gisborne—Radiologist £1000

Oxford, Radcliffe Infirmary—H P obstet. H.S, two H S s H.S to ear nose and throat dept., and cas O., each at rate of £100

Plymouth Education Committee—Temp asst school M O £500

Reading Royal Berkshire Hosp—Res anaesthetist at rate of £250

Royal Cancer Hosp Fulham road S W 3—H.S to radium dept at rate of £100

Royal London Ophthalmic Hosp City road E C 1—M O to X ray and electrotherapy dept., £150

Ryde Royal Isle of Wight County Hospital—H.S, £110

Salford Royal Hosp—H.S at rate of £125

Staffordshire County Council—Deputy county M O H £850

Swanley Kent Hosp Convalescent Home, Parkwood—Res M.O at rate of £200

Wolverhampton Royal Hosp—Two H S's and H P, each at rate of £100

The Chief Inspector of Factories announces the following vacancies for examining surgeons Leeds West and Farsley, W. Riding of Yorkshire Beverley, E Riding of Yorkshire

Medical Diary

Week beginning December 4

ROYAL SOCIETY OF MEDICINE, 1, WIMPOLE STREET, W 1

TUESDAY

2 P M general meeting of fellows

Orthopaedics 2 30 P M Mr C. Lambrinudi A Further Use of Kirschner Wires Mr H Jackson Burrows Treatment of Ununited Fractures by Bone-grafting Without Resection of the Bone Ends Miss M Forrester Brown Simplification of Technique in some Joint Operations

WEDNESDAY

History of Medicine 2 30 P M, Dr George Edwards Philip Syng Physick (1768–1837)

THURSDAY

Neurology 2 P M., Dr J W D Bull Subdural Haematomas

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION 1, WIMPOLE STREET, W 1

MONDAY and WEDNESDAY—4 30 P M (Brompton Hospital, S W 3), M.R C P course in chest diseases

BIOCHEMICAL SOCIETY

SATURDAY—11 45 A.M. (Courtauld Institute, Middlesex Hospital, W 1) short communications and demonstrations

MANCHESTER ROYAL INFIRMARY

TUESDAY—3 30 P.M, Prof H Platt Fractures of Limb Bones and Injuries to Joints Simple and Compound

FRIDAY—3 30 P.M Mr W P Douglas (*a*) Shock and Resuscitation of Shocked Patient (*b*) General First aid Treatment of Wounds and Burns

Appointments

JONES, D J M B Wales, D P H, assistant county medical officer of health for Northamptonshire and district medical officer for Brackley borough, Brackley rural district, and Brixworth rural district.

ROCHE, A F M Chir Camb, F R C.S, genito urinary surgeon to the West London Hospital

WALKER, GILBERT M B St. And, M R C P E, D P H, deputy county medical officer of health and deputy school medical officer for the North Riding of Yorkshire

Births, Marriages and Deaths

BIRTHS

BILLINGTON—On Nov 17 at Kampala Uganda, the wife of Dr W Roy Billington—a son

HAMILTON.—On Nov 21, at Glasgow, the wife of Dr James Hamilton of Galston, Ayrshire—a daughter

MORRAH—On Nov 18, at Trinidad to Dr Catherine Morrah, the wife of Michael Morrah—a daughter

VATCHER.—On Nov 21, at Chobham Surrey, the wife of Dr Sidney Vatcher—a son

MARRIAGES

BARKER—PRICE—On Nov 21 at St Leonards Ernest Marriott Barker, M B, to Cynthia Elizabeth Price

LONGRIDGE—MASON—On Nov 21 at Crookham Church, Lieutenant Robert George Mallory Longridge, M R C P, R.A M C to Eleanor Margaret Mason

MERRINGTON—VENABLES—On Nov 25 in London, William Robert Merrington, M.S, to Maxine Patricia Mary Venables

NAIRN—SHERWOOD—On Nov 3 in Calcutta, Stanley James Granville Nairn F R.C.S E, to Nora Sherwood

WRIGHT—LEVER—On Nov 21 at Bolton Lieutenant Philip Miall Wright, M R.C.S, R A M C, to Mary Lever

DEATHS

BOND—On Nov 23 at Leicester, Charles John Bond C.M G, F R.C S, aged 83

COX—On Nov 21 at Howth, co Dublin, Robert [illegible] Cox, F R.C.S I

FEGEN—On Nov 25, at Worthing C
M B Camb aged 73

KNOX SHAW.—On Nov 22 in Oxford
Shaw M R.C.S aged 81

PACK—On Nov 20 at Wort
Lond, aged 71

SCOTT—On Nov 21 1
M R.C P., of Wilbrah

STUART.—On Nov 21 at
aged 76

TROTTER.—On Nov 25
M D., M.S Lond, F

NOTES, COMMENTS AND ABSTRACTS

THE E.M.S. IN CHINA

JUST before our European war broke out, the China medical aid committee working with the British fund for relief in China and a Norwegian organisation with similar aims sent out to China seventeen refugee doctors, most of whom had already served for long periods in Spain. Dr. Jensen, a member of the first party to go out, sends the following account of an emergency medical service which contrasts with what we have experienced in England in the last few weeks:

"We left Hongkong three days after our arrival there. This means that the Foreign Auxiliary to the Chinese Red Cross bought within three days all things we were in want of and provided us with the necessary visas—although we were in possession of rather suspicious Spanish passports—and also booked our tickets for the next boat sailing for Haiphong.

"Unfortunately the organising influence of the secretary, Mrs. Selwyn-Clarke, met its Waterloo in *Indo-China*, where heavy rains and poorly constructed railways were the main hindrances. We decided to leave our forty cases of instruments and medical supplies in Haiphong, hoping they would follow us later when the sun was more favourable. After we reached Dongdang, the Chinese border city, we made quick progress in our journey. Bombed and machine-gunned trucks on the road and a few destroyed houses told us the story of air-raids, with which we were only too familiar during our experience in Spain. Everywhere were to be seen soldiers in good uniforms, with however few arms, training and working. Groups were improving the motor roads and ferries—a country working at high pressure during a war. As we journeyed through the Kwangsi province, we enjoyed to the full the wonderful pineapples and bananas and all other kinds of food, remembering our daily meal of beans in Spain. Nanning, the capital of Kwangsi, is evacuated and dead during the day because of frequent air-raids by the Japanese. But it awakens in the evening and lives then an all the more active and intensive life with shoppers and traffic everywhere.

"After three days we reached Kweiyang, where the Emergency Medical Service Training School, of which Dr. R. K. S. Lim is director, is situated. It is run by the National Health Administration of the Interior and one's first impression is of a youth-camp belonging to one of the sporting associations in England or America. Girls, wearing the same kind of uniforms as the soldiers (grey shirts and shorts) are all being trained here together. But one's impressions are quickly altered if one scrutinizes these young people closely. They take their places in rows at the call of a bugle; their occupation is not sport but medical science and practice and the preparation of soldiers and volunteers for the war with all its difficulties and bitterness.

"I saw these students in the cholera ward of the military hospital, their grey uniforms tightly covered with white gowns and their faces protected by masks. There is an epidemic of cholera in Kweiyang and the deathsheadlike cholera facies of the patients whom these students are nursing and the eagerness of nurses prove how much they are in earnest. The school is *a de facto* university when we regard the qualification of the teachers. Many of them are professors and graduates of well-known Chinese and Western universities. Dr. Lim is professor at the Peiping Union Medical College and the son of Lim Boon Keng, an Edinburgh graduate who was the first Minister of Public Health under the old Manchu dynasty and the founder of Amoy University.

"The fighting army in China at present is about two million strong. The Army Medical Service at the outbreak of the war had not more than 60 graduate doctors at their disposal, while Dr. Lim had perhaps no more than 8 qualified doctors when he started his work. The average time required to transport wounded to a surgical hospital is three days or more, and there is a lack of all kinds of skilled personnel. There are 400 students in the Training School. Doctors who graduated some years ago are learning to construct latrines and delouse clothes, and simple soldiers are bent over microscopes or staining slides. Bed-making is learned with the same intensity as bacteriology, and the best way to carry the wounded is practised with as much attention as is given to intravenous injections."

Dr. Lim, his staff, and his students have certainly put into practice the oath which everyone is obliged to sign before joining the Red Cross or entering the Training School: "In view of the serious national situation during which everyone must lend his aid, I as a citizen pledge myself to follow the teaching of our late Leader Sun Yat Sen, to serve the country by observing orders and discipline and faithfully to devote myself, regardless of difficulties and dangers, to the service of the health of the nation, especially in the relief of the wounded and sick."

WHAT IS BLEACH OINTMENT?

AT Croydon Police-court a pharmacist was lately summoned for selling a preparation labelled "Bleach Ointment" which did not contain the same amount of available chlorine as the ointments prepared according to formulæ given in two air-raid handbooks issued by the Home Office. The summons was dismissed, but the case was interesting because the evidence disclosed that there is no legal standard for bleach ointment and that in fact two different formulas for its manufacture have been published by the Home Office. Bleach ointment in the peace-time sense may not be the same thing as bleach ointment for the specific purpose of treating mustard gas burns, and it is desirable that some authoritative definition of bleach ointment for war-time use should be laid down for the guidance of chemists. In other words a standard for "Bleach Ointment A.R.P." is needed.

CORRIGENDUM.—The author of "Diagnosis and Treatment of Diseases in the Tropics," reviewed on page 1122 of our issue of Nov. 25, was Dr. H. C. Trowell.

The Lancet 100 Years Ago

November 30, 1839, *p.* 366

From a leading article on "Gatherings from Graveyards, particularly those of London," by G. A. Walker, Surgeon

. . . It is a common reproach that medical men do not sympathise with the popular respect for the dead, that they are devoid of "feeling"; that, like the worm, "your great anatomist," they revel in reckless desecration, and have only an eye for the nerve and artery, the joint and sinew, but remain quite insensible to the tenderer emotions of our nature.

> "Physician art thou? One, all eyes,
> Philosopher! a fingering slave,
> One that would peep and botanize
> Upon his mother's grave?"

Nothing is more false or unjust than this imputation. The softer feelings of the heart are quite compatible with the exercise of the intellect, and if the medical philosopher investigates the causes and seats of diseases, discovers the means of disarming death and preventing sorrow, and seeks to render interment uninjurious to the living, and compatible with the health, happiness, and highest interests of mankind, he may smile at the sullen, ignorant sorrower, centered and coiled up in a supercilious, though poetical, sentimentality.

ADDRESSES AND ORIGINAL ARTICLES

THE APPOSABLE THUMB *

By Sir Walter Langdon-Brown M D Camb , D Sc Oxfd, F R C P , LL D

EMERITUS PROFESSOR OF PHYSIC IN THE UNIVERSITY OF CAMBRIDGE , CONSULTING PHYSICIAN TO ST BARTHOLOMEW'S HOSPITAL, LONDON

That by virtue of the apposable thumb monkey became man is no mere metaphor The human hand returns its benefits with usury , yet all too often the insolence is taught that except in sports the mind should drop the acquaintance of the hands Thus in effect spoke Sir Clifford Allbutt a quarter of a century ago when deploring the divorce of medicine from surgery I must begin by confessing the sins of the physicians in the past, and shall discuss the history of that severance my predecessor so greatly lamented, as a chapter of a still larger issue, the separation of philosophy from craftsmanship

When the mudfish first crawled on to land by the aid of its spiky fins the rhythmic movements which hitherto had been so serviceable in balancing it in the water now became a hindrance Conformably with new demands new structures developed , the brain took a leap forward to form a neo pallium one of the earliest functions of which was to inhibit unnecessary automatic movements But so deeply had rhythm been imposed on the older nervous structures that to this day if through hemiplegia a child loses that higher control, we see in athetosis his arm imitating the movements of a fish's fin in swimming Elliot Smith pointed out that the more intelligent animals are those which have been able to shorten their noses sufficiently to bring their eyes to look forward and thus achieve binocular vision This stereoscopy encourages the testing power of touch and so the evolution of the hand The final stage was the capacity of the thumb to be apposed to the fingers , thus the human hand was born

* * *

The association between brain and hand is close By what mischance then did a partnership so pleasant and so fruitful undergo any severance in the intellectual life, a severance which for centuries retarded the science of the healing art ? To answer this we must turn to consider the conditions under which the universities arose

In almost the darkest part of the Dark Ages Pope Vitalian sent as Archbishop of Canterbury Theodore a Greek monk from Tarsus He established a school at Canterbury, and from this school our written literature in English took its birth Bede's youthful training and long tranquil life was spent at Jarrow where he introduced Archbishop Theodore's teaching of Greek Jarrow must have been in those days an oasis of civilisation amid a barbaric wilderness This led King Egbert to establish his school at York. His most distinguished scholar was Alcuin who became the chief adviser of Charlemagne in all matters religious and literary. It was under his influence that Charlemagne established the monastic and cathedral schools on the continent, the seeds of the medieval universities They were not founded but just grew out of Charlemagne's cathedral schools and a sudden passionate desire for learning that was born with the twelfth century Considering the difficulties of transport, an astonishing thing about the Middle Ages is the degree of mobility displayed by the wandering scholars who flocked hither and thither according as the reputation of some teacher waxed or waned Since Latin was the universal language of scholars there was no confusion of tongues When Abelard withdrew in disgrace and bitterness of soul to build a hut on a heath near Troyes, a flourishing community sprang up there almost in a single night, leaving Paris deserted, so great was his fame as a teacher

* * *

The word universitas originally signified not the studium or school but a guild or trades union formed for self protection either by the teachers, as at Paris, or by the students themselves, as at Bologna The feuds of Town and Gown were therefore innate in the system, for the towns both hated the students and were dependent on the money they brought

At this stage the university was as Schachner says, " an intangible affair, a thing of the spirit and therefore infinitely powerful " At any time masters and pupils could close down and journey to a more hospitable city with no more than their knapsacks, leaving financial disaster behind them This weapon was repeatedly used with serious consequences until 1499 when King and Parliament abruptly forbade the cessation of the University of Paris and won the day But by this time the universities had given valuable hostages to fortune and the secular authorities could confiscate their buildings and endowments

In England the rise of Oxford was one of the results of the historic quarrel between Henry II and Thomas à Becket As the clergy rather naturally sided with the Archbishop, the King somewhere between 1165 and 1169 ordained that no cleric should cross the Channel except by his permission and that all clerks abroad should return or lose their revenues In reply the King of France expelled the English scholars from Paris Returning they were attracted to the little studium of Oxford and settled there, modelling it closely on the lines of the University of Paris In 1209 a feud between town and gown ended in the master and students, some 3000 strong deserting Oxford for Cambridge and Reading When the quarrel was settled in favour of the university, as in those days it always was, many of the migrants to Cambridge remained there, though Reading had to wait till the present century before again becoming a university

* * *

I may be forgiven if I now proceed to illustrate my theme mainly from the history of my own University of Cambridge It was Hugh de Balsham, Bishop of Ely who first took steps to introduce the collegiate system there But for the beginnings of the collegiate system we must return to Paris Much as the roysterers may have enjoyed their liberty, the more serious students began to band together to hire a communal house By the middle of the thirteenth century the great majority of middle-class students lived in halls under the control of Masters To counter balance the influence of the teaching monasteries the College of the Sorbonne was founded, and this Oxford and Cambridge took as their model It is curious that with this start the collegiate system should have dwindled in Paris and only reached its full development in Oxford and Cambridge

It happened that in 1135, before university hostel or college was in existence, the hospital of St was founded in Cambridge for a community of Augustinian canons. They were granted an unpromising site towards the north of the town where the river Cam curves from its northward course and turns east. They soon made it pleasant with buildings, gardens and an orchard. The infirmary of the hospital remained till 1863 when it was pulled down to make room for Sir Gilbert Scott's chapel of dull Victorian Gothic. Hugh de Balsham who had become Bishop of Ely in 1257 obtained the royal licence to introduce into this hospital a certain number of the scholars who were now flocking to the university, but unfortunately the brethren and the scholars quarrelled incessantly. The original versions of Aristotle set free from Constantinople in 1204 were exciting profound interest everywhere, and had given impetus to a new form of learning—the old and the new were incompatible, and as has happened repeatedly, the old won. Balsham, who was both enlightened and determined, did not give up his scheme. He secured two houses adjacent to St Peter's Church (now Little St Mary's) put his scholars in there and called it Peterhouse. Thus the Collegiate system began at Cambridge in 1284, twenty years after Walter de Merton had started it at Oxford, and thus the quarrelsome monks lost for my first college the honour of being the oldest. For the Hospital of St. John gradually deteriorated, always seeking academic privileges and yet remaining independent; discipline was lax and scandals abounded till finally Pope Julius II dissolved it in 1510. Phœnix-like, however, owing to the benefaction of Lady Margaret, mother of Henry VII, and the exertions of Bishop Fisher, the Hospital was reborn a year later at St. John's College.

---

* Abridged from the Thomas Vicary lecture delivered before the Royal College of Surgeons of England on Nov 30

* * *

By this time scholars had ceased to wander. The mediæval church had never much approved of these wanderings. The mind of the Church was static, it regarded truth as static. No doubt the stability of the Church went far to stabilise Europe, but to confine the human mind is always dangerous and in time brings its own penalty. It must be admitted that many of these wanderers were anti-clerical. There was indeed a wave of anti-clericalism in the early thirteenth century to which two main influences contributed, one religious, the other royal. An injunction was laid down that no monk or canon regular was to read medicine, but the Franciscans did, and Roger Bacon, himself a Franciscan and the first English natural scientist, declared that chemistry was the basal science for a physician. The royal influence was the Emperor Frederick II, who was always ready for a contest with the Papacy. Salerno, well situated, free from malaria and possessed of mineral springs had for centuries been a health resort, and the physicians followed the patients thither. As early as the tenth century there was a flourishing medical school there and in 1231 Frederick II ordained that a licence to practise in the Kingdom of the Sicilies could only be obtained after study and examination therein. He insisted on a preliminary study of logic, and then dissection of corpses (which he had no difficulty in providing) combined with clinical work and the reading of Hippocrates and Galen. Students were not granted appointments until they had practised a full year beside an experienced physician. It all sounds astonishingly modern. Unfortunately his quarrels with the Papacy rent the world, and when he died in 1250 the Papacy had won. Thus we approach the second phase of the Middle Ages when authority was passionately felt to be necessary for the stability of Europe. The spirit of domination spread to science with disastrous results.

What was the attraction of scholasticism to the human mind? In essence it was an attempt to push reasoning by the apparatus of logic to its utmost extreme. The things that come into the mind are not to be taken for what they seem without some corrective observational and experimental tests of their validity. The mediæval schoolmen applied no such corrections; indeed authority forbade such tests.

We may proceed to inquire what were the opportunities for medical education under the conditions which then prevailed. In early times before the universities existed, the art of medicine was practically controlled by the Church, but in 1131 the Council of Rheims prohibited the regular clergy from devoting their attention to physical compositions. I am not clear what this exactly implies but as after this they confined themselves to prescribing medicines, it suggests that even at this early stage any kind of craftsmanship was looked at askance. Nothing I believe is known of a medical school earlier than that of Salerno, and of which the traditions were Greek based on the Hippocratic writings. For the rest medicine was dependent on Arabic writings and translations. The origin of Arabian medicines is curious. When the Nestorian Christians were expelled from Constantinople they settled first in Edessa and then moved farther east to Baghdad. The Sultan, being cured by a physician among them, induced some of his court to interest themselves in the learning these refugees had brought, one of the first fruits of which was a translation of Galen into Arabic somewhere between A.D. 820 and 873.

* * *

It is becoming rather fashionable to-day to denigrate the renaissance, but so far as medicine is concerned, things were in a parlous state prior to this rebirth. The days of the wandering scholars were ones of active progress in many ways, but hardly in medicine. The universities started as rather revolutionary anticlerical institutions, but with acquisition of wealth they became reactionary. Gradually the Popes insinuated that before a university could have the power of granting licences to teach anywhere in any country it must possess a Papal bull of foundation. Curiously enough papal influence seems to have varied inversely with the distance of a University from Rome. Thus Paris was much more under that influence than Montpellier or any Italian university. Indeed dissection of the human body seems not to have been tolerated anywhere north of Montpellier.

What was it that saved medical science at all during that dusk of two centuries after Frederick II's death in 1250? The answer is surgery, which the physicians tried hard to repress! Man shows a fiendish ingenuity in turning good to evil, but he also has the capacity for extracting good from evil. Thus the invention of gunpowder led to the improvement of surgical technique just as did the great war. Yet the University of Paris excluded all those that worked with their hands. The protest of the surgeons against this is an interesting story. They had been snubbed by the lordly university-bred physician as artisans. With increasing organisation, however, they managed to worm themselves into the faculty of medicine, but only as scholars to attend lectures. No degree was available. But the surgeons were ambitious. In 1491 they demanded full equality with physicians. The faculty retaliated in kind and admitted the barbers also. The surgeons did not relish this, and unearthed a statute that all lectures should be delivered in Latin which the unlettered barbers could not understand. The ingenious doctors got round this difficulty. They gave the lectures twice , once in Latin to conform with the statute, and then in French to conform with the meagre learning of the barbers That broke the resistance of the surgeons , faced with the competition of the barbers, they sued for peace

But now the renaissance was at hand, and its harbinger in England was Erasmus A great scholar, he was also a man of affairs, wise and tolerant He inculcated that spirit of compromise for which the English are now renowned G M Young says, "It has always seemed to me that things go well or ill with England as the spirit of Erasmus shines clear or faint within us" Yet to read his life is to realise the painful shrinking of the scholar, dragged by all sense of duty into the noisy arena of international politics Let us gratefully remember that we are the freer for his sufferings

The year 1511 which saw Erasmus established in Cambridge was an important date in the history of surgery, for an Act was passed requiring those who practised medicine or surgery in England to be licensed after due examination by the bishop of the diocese or in the case of London by the dean of St Paul's

Prior to 1514 when Thomas Linacre gave a lecture at Oxford, there are scarcely any records concerning the study of medicine at either university After this, however, things moved more quickly for in 1518 the Royal College of Physicians was founded with Linacre as its first president and by his will lectureships were founded in 1524 at both universities In 1540 this was followed by the establishment of the regius professorships With such a start as this it is disappointing to find how little was achieved The Linacre lectureships at Oxford were shamelessly annexed as sinecures, often held by non medical men until in 1854 the emoluments pertaining to it were used to found the Linacre professorship of physiology. The history of the Cambridge lectureship is not quite so reprehensible, though here too nearly half the lecturers were not medical Still in the nineteenth century it was held by such men as Sir Thomas Watson, John Haviland and Sir George Paget, and since 1908 it has been made an annual election when a man of mark is invited to give a single lecture, Sir William Osler being the first under this new dispensation So at long last Linacre's benefactions have borne fruit

* * *

How can we account for this extraordinary time lag in the progress of clinical medicine ? Though theology dominated the situation, there were two distinct schools of thought within its boundaries One was rationalistic, the other mystical Curiously enough it was the rationalist school that was anti scientific, while the mystics were pro scientific The explanation of this paradox was that rational theology was anti magic and mystical theology was pro magic And the fundamental cleavage lay not between those who would make use of reason and those who would not, but between those who could make use of their hands and those who refused to do so This analysis makes clear why the severance between medicine and surgery was maintained as a special instance of the cleavage between philosophy and craftsmanship

* * *

The first man to reinstate craftsmanship into medicine was Auenbrugger when he introduced the method of percussion in 1761 The son of an innkeeper he understood the importance of knowing how much wine there was in a given cask and watched his father using the time honoured method of slapping the sides of the cask and noting the resulting sounds It occurred to him to liken the chest to a wine cask and to apply a similar method He was also a skilled musician, and actually composed an opera which delighted the Empress Maria Thérèsa , this implies the possession of an acute sense of pitch which must have increased his diagnostic skill in distinguishing the various notes elicited by percussion He suffered from envy, hatred and calumny and, what is harder to bear, simple neglect Yet this too he seems to have taken philosophically, for when Corvisart, afterwards physician to Napoleon, read his book and made his methods widely known, Auenbrugger then 86 years old seemed quite unaffected by his belated fame

This was followed by the discovery of auscultation by Laennec in 1816, who suddenly thought of applying a well known acoustic fact that if the ear be placed against one end of a plank it is easy to hear the scratch of a pin at the other From these homely beginnings the whole science of physical signs was built up in the early nineteenth century and physicians became no longer ashamed to use their hands The critic may observe that for the next fifty years too much attention was devoted to correlating these physical signs with post-mortem findings, thus focusing attention on the end-results in which the patient was no longer interested To this we may justly reply that a sound basis of knowledge was thereby obtained which was necessary before further advance was possible Meanwhile anæsthesia and asepsis were completely revolutionising surgery Biopsy was giving earlier information than necropsy, and in the last decade of the century clinical pathology added a new weapon to our armament The twentieth century saw the physician so surrounded by apparatus that in its midst the patient as an individual tended to be lost sight of Then came the new psychology, swinging the pendulum so powerfully in the opposite direction for a time that the craft of medicine seemed again in some danger of being submerged by a sea of a priori speculations Fortunately this reversion to the mediæval methods of thought has been halted, and psychology by becoming more observational is proving of the greatest value to medicine The conception of a psychosomatic unity is thereby becoming current, and the study of the interactions of mind and body is full of promise for the future

* * *

I would sum up my main argument thus amid the storms of the Dark Ages, the Church was the only ark She had to be sure of herself and make others feel sure of her When in an age of unreason men began to rediscover the pleasure of mental exercise she saw to it that her postulates were the only premises from which such exercises should start An authority was stabilised which maintained that it was not only unnecessary but impious to inquire into the origin and nature of man or of the universe since all such questions had already been answered by the Church Without curiosity there can be no science and if man uses reason unchecked by observation and experiment, reason itself becomes sterile and fallacious In such an atmosphere medicine remained ignorant and became arrogant Medieval craftsmanship found sufficient and splendid outlets in architecture, storied windows and sculpture that remain to this day a joy for us But to apply experiment or employ handicraft on a being with an immortal soul appeared like high treason in the cloisters of speculation and the courts of philosophy Therefore surgery could only be tolerated as a painful necessity, painful indeed in view of its then orthodox procedures To escape from such an attitude of mind, a different attitude to the whole of life was imperative and thus the renaissance provided

Yet the door thus opened was not entered at once and Harvey's injunction to seek out the secrets of nature by way of experiment was but falteringly followed. New ideas seem automatically to excite resistance, of which the long drawn-out refusal to surgery of its proper status is but one example. But never again are we likely to exchange the birthright of the apposable thumb for a mess of dialectical pottage.

SYSTOLIC CLICKS DUE TO LEFT-SIDED PNEUMOTHORAX

By J. G. Scadding, M.D. Lond., M.R.C.P.

ASSISTANT PHYSICIAN TO THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON; FIRST ASSISTANT, DEPARTMENT OF MEDICINE, BRITISH POSTGRADUATE MEDICAL SCHOOL, HAMMERSMITH;

AND

Paul Wood, M.B. Melb., M.R.C.P.

PHYSICIAN TO OUTPATIENTS AT THE NATIONAL HOSPITAL FOR DISEASES OF THE HEART, LONDON; FIRST ASSISTANT, DEPARTMENT OF MEDICINE, BRITISH POSTGRADUATE MEDICAL SCHOOL

In the past two years we have observed four cases which presented curious and striking extra sounds during the cardiac cycle, in association with shallow left-sided spontaneous pneumothorax. Observations have also been made on the production of similar sounds in artificial pneumothorax. It is the purpose of this communication to report these observations.

SPONTANEOUS PNEUMOTHORAX

Case 1

A man, aged 26, attended the outpatient department at Hammersmith Hospital in June, 1937. His history was that ten days previously he had noticed a "twinge" behind the left shoulder-blade, followed by a constant aching pain. This was made worse by lying on the back or on the left side and was accompanied by slight dyspnœa. Four days later, on first waking in the morning, he noticed a "curious bumping sensation" in the chest, accompanied by a faint sound. This had been present occasionally ever since; it was not made worse by movement but seemed rather more liable to appear when he was lying down. There were no notable previous illnesses, and he came of healthy stock.

On examination, signs in remarkable harmony with the patient's account of his symptoms were found. In the left axillary line, just outside the apex-beat, coarse clicks synchronous with the heart-beat were heard. They occurred during systole and were loudest in deep inspiration. They were audible only when the patient was recumbent, and their loudness was easily changed by small changes in posture. The patient was conscious of their coming and going. The only other abnormal sign was very slight weakness of the breath sounds in the left axilla. Radiography showed a very small left-sided pneumothorax—so small that it was not visible on screen examination, requiring a film for its demonstration. There was no other abnormality in the radiogram.

The patient was seen again six weeks later, when he said that he had been free from symptoms since his previous attendance. However, on ausculation in the recumbent posture during deep inspiration, clicking sounds similar to those noted before, but fainter, were heard; and a radiogram showed that the small pneumothorax was still present. Since he had no symptoms and the pneumothorax was regarded as a simple non-tuberculous one, he was allowed to return to his sedentary occupation. In September, 1938, a report was received from his doctor that he was still free from symptoms, but it has not been possible to persuade him to come to hospital for another radiological examination to confirm complete re-expansion.

Case 2

A lad of 17 was admitted on Nov. 1, 1937, complaining of a pain in the left side of his chest. A month previously he lost his appetite and became tired; ten days before admission he developed a cold and stayed at home; the cold spread to involve his chest, and he coughed up yellow sputum occasionally tinged with blood; the pain occurred suddenly on Oct. 31 while he was walking, and he felt as if something in his chest had been torn.

On examination he was found to be nervous and rather thin. The pain in the chest was aggravated by deep inspiration and by lying on the left side and was relieved by lying on the right side. At the apex-beat a peculiar vibration could be felt, and on auscultation this was found to consist of a short rough systolic element followed by a curious diastolic click. These sounds tended to disappear with deep inspiration and to become louder during expiration. They were located over the site of the pain, and this area was tender on pressure. There were no other abnormal physical signs, the temperature was normal, the pulse-rate 70–80, and the respiration-rate 20–24. The first suggestion was that the queer noises were due to pericarditis.

A radiogram of the chest was reported as showing nothing abnormal. An electrocardiogram revealed congenital abnormality of conduction characterised by a short P-R interval and a widened QRS complex, and further investigations were made in an attempt to analyse the mechanism of attacks of paroxysmal tachycardia produced by effort and with certain drugs. Other laboratory findings were normal.

On Nov. 11 he had another attack of pain in the region of the apex-beat, aggravated by deep breathing, by movement, and by lying on the left side; it was relieved as before by lying on the right side. The peculiar sounds heard on admission returned, and on careful analysis the click was found to occur just before the second heart sound.

Because the adventitious noise resembled that heard in case 1, the radiogram was reinspected critically, and an extremely small pneumothorax was recognised over the upper lobe of the left lung. This cleared up in a few days, and the abnormal sounds disappeared. It must be emphasised that these sounds were rarely constant at any time but varied with the position of the patient.

Case 3

Another young man, also 17, attended the outpatient department on Aug. 4, 1938, complaining of a peculiar tapping noise synchronous with the heart-beat on adopting a "hunched up" posture; the noise could be heard by his mother a yard away. By now familiar with this symptom, we diagnosed spontaneous partial left pneumothorax.

The history dated from July 26, when a tooth was removed under nitrous-oxide anæsthesia. The following morning he felt limp and a little breathless, but had no pain and no cough. The noise in his chest began during the morning of the 27th and continued on and off, as described above, until Aug. 10.

Examination revealed a slightly worried but healthy looking young man in no real distress. A clicking sound, accompanying cardiac systole, could be heard plainly when he adopted a "hunched up" posture. *Diminished movement, a tympanitic percussion note*, diminished tactile fremitus, poor air entry, and weak voice sounds were discovered over the left upper zone of the chest, especially high up in the axilla. A radiogram confirmed the diagnosis of partial left pneumothorax.

Three days after the click was heard for the last time a second radiogram showed complete re-expansion of the lung. The clinical, radiological, and laboratory findings indicated that the pneumothorax was of the idiopathic benign non-tuberculous type.

The following case is reported by courtesy of Dr John Parkinson

Case 4

A boy, aged 16, complained of pain in the left side of his chest Up to the time of onset he had been perfectly fit On Dec 1, 1938, he developed a sharp pain in the region of the fourth and fifth sternochondral junctions, it radiated upwards towards the left clavicle and was aggravated by sudden movement, such as bending forwards quickly, but not by deep breathing On the third day he consulted his doctor, who put him to bed for three days, during which time the pain disappeared only to return however, when he got up On Dec 16 he was admitted to the National Hospital for Diseases of the Heart

Examination revealed a boy who did not look ill, and positive findings were limited to the thorax Curious sounds accompanying the heart beat were heard over the fourth and fifth intercostal spaces adjoining the left border of the sternum, they were described as clicking or crackling sounds—like variable loud bubbles, underlying them could be heard a quiet pleuropericardial friction rub One of us was kindly allowed to listen to these sounds and at once recognised them They were loud systolic clicks, variable in their time relationship to the two heart sounds and significantly altered by change of posture In this case there were signs of partial left sided pneumothorax slight diminution of movement of the left side of the chest and a hyper-resonant percussion note over the heart Apart from a slight fever (99° F) no other abnormality was discovered clinically

The pulse-rate averaged 70, the erythrocyte sedimentation-rate measured 2 mm in an hour by the Westergren technique on two occasions, the blood-count was normal, and serial electrocardiograms were normal A radiogram revealed partial left sided pneumothorax with a small effusion

Recovery was uneventful, except for a recurrence of pain accompanied by an increase in the intensity of the clicking noises on Jan 11 The patient was discharged on the 27th, free from pain, his lung having re-expanded and the signs having disappeared

To summarise these observations associated with shallow left sided pneumothorax, extra sounds of clicking character have been noted in the cardiac cycle, usually best heard in the region of the apex-beat The sounds were usually single clicks and then occurred in the systolic part of the cycle, occasionally a more complex extra sound during systole was heard, or an additional less prominent diastolic sound of similar character might be heard In all cases, and at all times, the systolic clicking element was the most striking The sounds varied both in intensity and in timing with small changes in posture, and in two cases were at times loud enough to be audible to the patient and to bystanders The pneumothorax in all cases was of the benign non tuberculous type and was absorbed without incident, the sound disappearing when the pneumothorax was absorbed or earlier In only one case did fluid appear in the pneumothorax, and this was one of the two in which a diastolic element was at one time heard The clicks have not been heard in association with larger pneumothoraces

ARTIFICIAL PNEUMOTHORAX

In four cases of exudative pulmonary tuberculosis of limited extent, which were to be treated by left-sided artificial pneumothorax the induction was performed with a smaller volume of air than usual and careful observation made during and after induction for the occurrence of extra sounds In two of the four cases loud systolic clicks were produced (see below) In the other two, though soft extra sounds were transiently audible on careful ausculation in various postures they were not striking enough to be comparable with the sounds heard in the cases of spontaneous pneumothorax, No gross anatomical difference, such as the presence of pleural adhesions could be found to account for the production or non-production of the sounds

Case 5

In a girl aged 19, a left-sided artificial pneumothorax was induced for a tuberculous lesion of moderate extent at the apex of the left lung During the induction, performed with a needle in the fifth intercostal space in the midaxillary line, with the patient lying on her right side, it was noted that after 25 c cm of air had been introduced, a distinct click late in systole became audible in the region of the apex-beat When more air was introduced, this sound disappeared, 150 c cm in all was introduced on this day

On the following day, the patient stated that she had occasionally noted a "clicking" sensation in the præcordium On auscultation, a sharp scratching sound was noted just before the second cardiac sound, loudest in the region of the apex-beat, not audible more than 2 cm inside the apex-beat, and loudest in inspiration A refill of the pneumothorax was performed, the sound gradually became softer until, after about 150 c cm had been introduced, it was no longer audible

Case 6

In a lad of 19, bilateral apical pulmonary tuberculosis was treated by bilateral artificial pneumothorax When the observations recorded below were made, the right artificial pneumothorax had been established for a fortnight and a good selective apical collapse obtained

At the induction on the left side only 150 c cm of air was introduced. After this a systolic "click" in every way similar to that noted in the cases of spontaneous pneumothorax was observed It was a sharp sound occurring immediately before the second cardiac sound It was best heard in the fourth left intercostal space close to the left sternal margin but was still audible at the apex-beat. It was heard only when the patient was sitting half propped up on his elbows, and it was loudest towards the end of inspiration

On the following day the patient stated that he had been conscious occasionally of a "clicking" sensation to the left of the sternum On examination in the half propped up position, there was little change in the character of the sounds from those noted on the previous day, except that the area of maximal loudness had moved nearer to the region of the apex-beat It was still late in systole—almost synchronous with the second sound It was inconstant in appearance, the factors determining its presence not being clear When the patient was placed on his right side, a striking change was noted The click became so loud that it could be heard clearly several yards from the patient, without the use of a stethoscope The patient became conscious not only of the sound but also of the sensation which he had previously mentioned On auscultation it was noted that the sound was now occurring much earlier in systole, very soon after the first sound A refill of the pneumothorax was then performed, the sound steadily diminished in loudness and became later in systole After about 300 c cm had been introduced, the click became early systolic once more very soft, and heard only at the end of expiration With further introduction of air it disappeared entirely and, after the refill of 500 c cm, could not be detected in any posture

A rather shallow collapse only was maintained on the left side Twelve days after the induction the patient said that he had felt the "knock" in his chest again. On sitting him up at an angle of about 40° and inclining him slightly to the left, a distinct sound could be heard, even without stethoscopy. On auscultation it was found to consist of two parts: the first softer click in midsystole and the second louder part synchronous with the second sound, rather high-pitched, sharp, and resonant. Very slight change in position caused the sounds to disappear. With further refills of the pneumothorax the sound disappeared and was not observed again.

The sounds produced in these cases were similar in quality and timing to those observed in the cases of spontaneous pneumothorax Small changes in posture made great changes both in the loudness of the clicks and in their timing during the systolic phase. In case 6, on the day after the introduction of 150 c cm of air, the sound was clearly audible to bystanders when the patient lay in the right lateral position In both cases the introduction of more air rapidly caused the extra sound to disappear.

LITERATURE

Previously recorded cases in which transient loud noises synchronous with the heart-beat were associated with the sudden onset of pain and dyspnœa and with the appearance of air in abnormal situations in the tissues seem to fall into two distinct groups.

Sounds in association with left-sided pneumothorax.—Where the sounds were, as in our cases, clicking and heard chiefly in the systolic part of the cardiac cycle, left-sided pneumothorax has been present without exception We have found two case-reports of left-sided spontaneous pneumothorax with systolic clicks (Wolferth and Wood 1930, Lister 1928) and a reference to some unpublished observations of similar systolic clicks occurring during artificial-pneumothorax treatment (Barnwell and Greene, cited by Johnston 1938) It is probable that the cases of "pericardial knock" observed after penetrating wounds of the left side of the chest during the last war (Smith 1918), Rees and Hughes 1918, Munden 1918) belong to the same group. It was thought by some that these sounds were caused by interstitial emphysema, but the fact that they were heard only with left-sided wounds is strong evidence against this view and in favour of the view that they were related rather to the presence of a left-sided pneumothorax.

Sounds in association with mediastinal emphysema.—Where the sounds were crunching, churning, or crackling and might be heard as well in diastole as in systole, interstitial emphysema of the mediastinum has been constantly present Attention was called to a group of cases in which such sounds were thought to be due to spontaneous interstitial emphysema of the mediastinum by Hamman (1937), and other cases have been recorded by McGuire and Bean (1939) On examining Hamman's 6 case-records critically, it is not clear to which group some of them belong In 2 the extra sound was noted to be systolic, and radiograms showed small left-sided pneumothoraces, in 2 the presence of air in an abnormal situation was not actually proved; but in the remaining 2 the appearance of subcutaneous emphysema at the root of the neck left no doubt of the nature of the lesion. In these the extra sounds were described as "a systolic crunching sound" and "crackling popping sounds over the heart, accentuated with each contraction" Mediastinal emphysema in these cases, as in the 2 cases of McGuire and Bean, arose without obvious cause; it has also been observed in asthma (Rosenberg and Rosenberg 1938), in laryngeal diphtheria, measles, and whooping-cough (Rolleston 1928), in influenzal pneumonia (Meyer and Lucke 1920), during parturition (Gordon 1927), in active pulmonary tuberculosis (Dobbie 1936), in bronchopneumonia in children (Watkins 1936), and complicating foreign bodies in the bronchi (Clerf 1935), as well as following gross trauma, including surgical procedures involving the mediastinum. The presence of pneumothorax in cases of mediastinal interstitial emphysema is not uncommon, as would be expected on the usually agreed hypothesis that in most cases of mediastinal emphysema air first invades the interstitial tissues of the lung from the intrapulmonary air-passages; it is therefore likely that both sorts of extra cardiac sounds may occasionally be audible in the same case.

We have observed a case which fell into the category of mediastinal emphysema; it was that of a woman who had a *perinephric insufflation of air performed* by our colleague, Dr. E. P. Sharpey-Schafer, for the detection of a possible suprarenal tumour. That mediastinal emphysema resulted was shown by the appearance of subcutaneous emphysema at the root of the neck; and on auscultation of the heart, there were crackling noises both in systole and diastole, resembling those described by Hamman but quite unlike the sharp clicks heard in our cases of pneumothorax.

Two cases of pericardial friction rub appearing after spontaneous pneumothorax superimposed on artificial pneumothorax in patients with extensive pulmonary tuberculosis were reported by Louria (1939). He concluded that the sounds were pleuropericardial in origin; since they occurred in association with extensive inflammation, and in one case the pneumothorax was right-sided, it seems that they have no relation to the sounds discussed in this paper.

MECHANISM OF PRODUCTION OF THE SOUNDS

The mechanism of production of the sounds in mediastinal emphysema is obvious. In shallow left-sided pneumothorax, we think the sounds are made by the forcible separation of the visceral and parietal pleuræ during cardiac systole, when the small air-bubble in the pleura is in such a position that it can be moved by the cardiac pulsations—a mechanism similar to that of production of the consonant "t." This hypothesis explains the presence of the sound only with small pneumothoraces, its disappearance if more air is introduced, and its extreme sensitivity to changes in posture. Several other hypotheses have been advanced to explain these sounds. Barnwell and Green (cited by Johnston 1938) observed sharp systolic sounds in left-sided artificial pneumothorax and concluded that they were caused by the movements of a highly active heart not cushioned by lung tissue striking the chestwall or the diaphragm This hypothesis does not explain the absence of the sounds in larger pneumothoraces A hypothesis which has nothing to recommend it except its extreme ingenuity was that advanced by Lister (1928); he thought the sound was analogous to the loud sound heard at the diastolic pressure level, during the estimation of blood-pressure by the auscultatory method, and that it was produced by kinking of the left pulmonary artery, causing compression to a pressure corresponding with the pulmonary diastolic level

CLINICAL IMPORTANCE

The extra sounds in the cardiac cycle produced by shallow left-sided pneumothorax are important from several points of view The syndrome may be most larming to the patient and to his relations and may islead the physician into making a diagnosis carry- g an unnecessarily grave prognosis, for, unless the eculiar nature of the added sound suggests the dvisability of having a chest radiogram made, the pontaneous pneumothorax is likely to remain undiag- osed, for it may be too small to cause definite physical igns In each of our cases the spontaneous pneumo- horax was of the benign non tuberculous type and nally absorbed without incident We have been nformed of several cases in which loud extra sounds ynchronous with the heart beat led to the making of n alarming diagnosis, which was shown to be un- ustified by the subsequent course Of these, the ollowing is an example —

Case 7

This is the tale of an event which occurred ver twenty years ago A young man, apparently n perfect health, suddenly developed a sharp pain n the chest, and this was followed by an extremely oud peculiar noise accompanying the heart-beat The noise was so loud that it could be heard in the oom below The doctor, confronted by a somewhat nxious patient, diagnosed a ruptured heart valve nd confined the patient to bed. Three weeks later he sound had disappeared and the patient felt per- ectly well He is now in normal health and suffers rom no cardiac disability

It seems to us almost certain that this was a case of pontaneous left partial pneumothorax of the benign nontuberculous idiopathic variety

"SYSTOLIC GALLOP RHYTHM"

The syndrome is also of interest in relation to systolic gallop rhythm While it is generally agreed that systolic gallop is not of grave significance, developing usually in the absence of organic heart disease, the origin of the extra sound is obscure Gallavardin (1913), on the basis of 3 cases studied at autopsy, suggested that it was associated with pleuropericardial adhesions, which were found in 2 of them Johnson (1938), with the aid of sound-tracings, showed that the extra sound varied in timing and in intensity with respiration and with changes of posture, and he concluded that it was extracardiac Of 21 cases studied by Johnston the extra sound was described as a click in 17 Thompson and Levine (1935), on the other hand, in a clinical study of 35 cases of systolic gallop, described the extra sound as resembling in quality the normal first heart sound, but admitted that in a minority it had more of a valvular element, like the second heart sound, resembling in these cases the metallic clicks described by other authors and supposedly due to pleuropericardial adhesions It seems therefore that two distinct types of extra sound have been described as systolic gallop We suggest that the use of this term should be restricted to those cases in which the extra sound resembles in quality the first heart sound, as in the majority of the cases of Thompson and Levine In the other group, into which most of Johnston's cases fell the extra sounds are sharp clicks very similar to those heard in association with partial left sided pneumothorax and quite unlike gallop rhythm The term "systolic click" adequately describes the sounds in all cases in which they are of this quality Although the systolic clicks described by Johnston and those due to left sided pneumothorax are similar not only in quality but also in their relationship to respiration and to changes of posture, they differ in intensity and in persistence, for in the pneumothorax cases the sound is loud, often startlingly so, and is always transient, whereas in the cases described by Johnston it was not particularly loud and was apparently audible over a long period The extra sounds ascribed by Gallavardin (1913) to pleuropericardial adhesions probably fall into the same group, Johnston clearly considers them to have been of the same nature as the sounds observed in his cases

SUMMARY

(1) Four cases of left sided benign spontaneous pneumothorax in which extra sounds of clicking character were heard during cardiac systole are described The sounds varied greatly in intensity with small changes in posture, and in two cases were at times audible to bystanders and to the patient

(2) Similar sounds were produced in two out of four cases in which a very shallow left sided artificial pneumothorax was induced *

(3) These sounds must be distinguished from the more continuous crackling sounds, both in diastole and in systole, which are heard in mediastinal emphysema

(4) The bearing of these observations on the question of systolic gallop rhythm is discussed

We are indebted to the Chief Medical Officer, London County Council, for permission to publish the case-reports

REFERENCES

Clerf L H (1935) *Ann Otol &c St Louis*, 44, 304
Dobbie D N (1936) *Lancet*, 1, 365
Gallavardin, L (1913) *Lyon méd* 121, 409
Gordon C A (1927) *Amer J Obstet Gynec* 14 633
Hamman, L (1937) *Trans Ass Amer Phys* 52 311
Johnston, F D (1938) *Amer Heart J* 15, 221
Lister W A (1928) *Lancet*, 1, 1225
Louria M R (1939) *Amer Rev Tuberc* 39, 179
McGuire J, and Bean, W B (1939) *Amer J med Sci* 197, 502
Meyer J and Lucke B (1920) *Ibid*, 159, 417
Munden W P H (1918) *Brit med J* 1, 174
Rees, W A, and Hughes G S (1918) *Lancet* 1 55
Rolleston J D (1928) *Proc R Soc Med* 21, 771
Rosenberg, L, and Rosenberg, J (1938) *Amer J med Sci* 196, 682
Smith S M (1918) *Brit med J* 1, 78
Thompson W P, and Levine, S A (1935) *New Eng J Med* 213, 1021
Watkins A G (1936) *Brit med J* 2 965
Wolferth, C C, and Wood, F C (1930) *Med Clin N Amer* 13, 947

THE TRAGEDY OF FOOTWEAR

By Edwin A Lindsay, F R C S
ORTHOPÆDIC SURGEON TO THE MILLER GENERAL HOSPITAL AND QUEEN MARY'S HOSPITAL FOR THE EAST END, LONDON

In an age when events happen quickly and progress is the watchword, when fitness campaigns are being broadcast and health cults are being taken up by the multitude, it is a lamentable fact that foot coverings, instead of keeping pace with this rapid advance, have so far lagged behind that they may seem to be going the other way In fact, in many ways modern shoes have increased their detrimental effects on the feet they were intended to protect

Why do we wear shoes at all, if it is not to protect the feet? Then, if it is to protect the feet, that idea should be uppermost in the minds of the makers But is it? Are they not more concerned with what attracts the eye of the purchaser and do they not make greater efforts to push the sale of their goods than to produce what is best for the foot of the wearer? At least that is how it appears to the suffering public. Constantly one hears the pitiful wail, "But where can I get suitable shoes? I have tried everywhere." Where, indeed, can comfortable shoes be obtained for these poor sufferers? Some there must be who manage quite well and have no complaint, but there are many, very many, whose daily lives are spent in semi-torture, merely because they cannot obtain suitable footwear. Something could and ought to be done for these unfortunates.

---

* Since this paper was written Edwards and Simpson (*Tubercle* 1939, 20 436) have reported three cases of pulmonary tuberculosis treated by bilateral pneumothorax in which a knocking sound was heard after the induction on the left side In one they observed that the knock ceased after a left sided refill

The problem is not new. Complaints are heard and read on every side. Medical men have criticised footwear from time to time, written articles in the journals, and lectured about it, but still the difficulty exists. Realising that all was not well, the manufacturers for some years have been trying to overcome the defects by adding various gadgets, such as arch supports and metatarsal elevations; but, although these may help to some extent, the failure lies in the fact that the shoes are made on the same old lasts. It is now ten years since I pointed out at the Boot Trades' Association meeting at Harrogate that the old lasts should be scrapped and a fresh start made with new shapes.

LASTS

Lasts are made by a separate body of men, and these men try to please the eye of the manufacturer regarding style and fashion instead of trying to suit the feet of the wearers. In fact, there is no direct coördination between last-makers and shoe-fitters. The last-maker acts, as a rule, purely on measurements with no definite attempt to copy the shape of the human foot. If he cuts away so much from the rear of the wooden block on which he is working, to give elevation at the heel, he then cuts away a proportion from under the front to give so-called toe-spring to the last, and so on. The last is then shaped up to conform to measurements, but no real attempt is made to copy the foot. Various alterations are made in the last from time to time in an attempt to correct defects found in the footwear, but it is always an increase here or a cutting away there or a twist somewhere else instead of starting with a new idea. Lasts appear to have been made in this way always, and the last-makers follow their ancient customs without any help or guidance from fitters, manufacturers, or anatomists. The wonder is that they manage to come as near the mark as they do. There is still another handicap placed on the last-maker: he is encouraged to round off the last in convex curves to facilitate the work of the shoemaking machines instead of making concavities which would allow support for the foot. The result of all this is that the shape of the last is not the shape of the foot; and, when the shoe is made, the foot, being mobile, is forced into an unnatural position and by a gradual process is moulded out of its original shape into the deformity so often seen in the hospital orthopædic departments (fig 1).

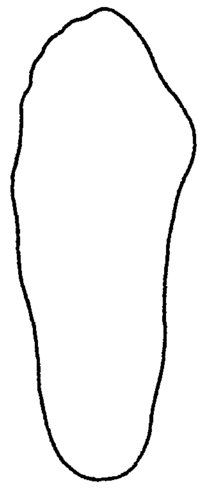


FIG 1.—Outline of a foot which has been deformed by years of wearing unsuitable shoes, all the toes being turned outwards.

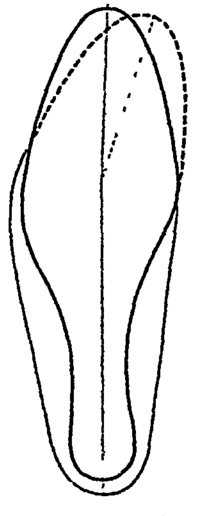


FIG 2.—Heavy line is tracing of sole, light line traces upper of shoe, dotted line is position forefoot would assume if not prevented by shoe.

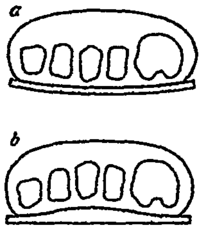


FIG 3.—Positions of the metatarsal heads when bearing weight (a) in an ordinary shoe and (b) in a shoe with a convex tread.

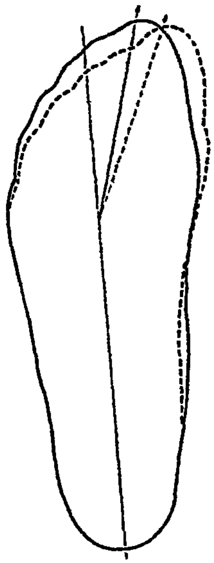


FIG. 5.—Tracing of an average foot inclined to be flat. The dotted line shows the position adopted when the long arch is slightly raised: the toes turn more inwards, the foot is slightly shorter, and a concavity appears along the inner border. Ordinary shoes prevent the foot from adopting this position.

FAULTS IN SHOES

One outstanding fault is a twist of the forepart of the foot outwards (fig 2), with pressure along the first metatarsal, and an extra bend outwards of the great toe. This is a deceptive feature, for the appearance of the shoe at first suggests that the sole had been placed more inwards in relation to the heel, to conform to the curve of the foot in that direction, but on closer inspection it is seen that the sole, instead of pointing inwards really points outwards, thus causing pressure on the first metatarsal and great toe. This is probably a survival of the idea that toes should point outwards. To complete the so-called smartening process, the outer border of the toe of the last is sloped inwards from the tread or base of the little toe to meet the inner border (fig. 2); but no foot has this pointed shape, and consequently all the small toes are doubled up and crowded together. Even in comparatively wide-toed shoes this tendency is present. Corns, hammer toes, hallux valgus, bunions, and overriding toes follow as a matter of course.

Very few shoes have a flat inner sole from side to side. Most are concave, caused by the convex bottom of the last The result is that the middle metatarsal heads are forced downwards below the level of the inner and outer heads when weight is put on the foot (fig 3) This is a reversal of their anatomical position in the undeformed foot at rest When as is usually the case, the shoe is rather tight across the tread or joint, weight bearing must cause discomfort or pain from increased pressure and eventually produce metatarsalgia

There has been much discussion about the problem of support or no support for the long arch of the foot Some authorities contend that the foot should not have any artificial support, but others, by practical experience, have found that properly fitting supports of the right material give great relief The point is that the foot is being subjected to unnatural conditions of constant strain and cramping which it was never designed, and therefore artificial support of some kind is necessary when the foot gives way under this strain

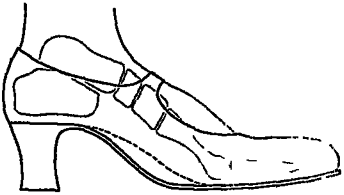


Fig 4—The unsupported space between the sole of the shoe and the foot in the metatarsal region The waist in a properly made shoe should extend forwards to fill up this space

Now, in the usual last for ladies' shoes the waist dips down from the heel well behind the tread of the foot, leaving a space below the anterior parts of the shafts of the metatarsals which is only filled by air in the shoe (fig 4) This means that weight is borne directly by the metatarsal heads in a tilted position, and they are not relieved by support under the shafts The effect of this continual driving downwards and forwards is to cause callosities on the ball of the foot under the metatarsal heads and cramping of the toes in the narrowing forepart The lack of support in this situation allows excessive strain, in standing, on the tarsometatarsal joints This peculiar feature in the last has nothing to do with fitting the foot but is merely a method of making the machine work easily and of allowing the foot to be inserted into the rather cramped forepart of the shoe

CORRECT FOOTWEAR

The most important feature of correctly shaped footwear are (1) the shape of the insole, (2) the surface of the insole, and (3) shaping of the upper

The *shape of the insole* should roughly follow the shape of the *normal foot*—i e an outline of the foot on paper, in which there is a distinct angle at the central part, the forepart pointing inwards (fig 5)

The *surface of the insole* is probably the greatest difficulty, for it should conform to the sole of the foot giving support where necessary and relief from pressure at certain prominences It should be slightly convex from side to side at the tread (fig 3) It should be elevated behind the metatarsal heads and along the inner aspect of the arch, forming a moderate metatarsal and valgus support On the other hand, there should be a groove or depression on the outer side to prevent pressure on the cuboid and base of the fifth metatarsal bones The heel seat is better if cupped to hold that part of the foot firmly in position and not allow side twisting, which happens where it is flat

The *shaping of the upper* should be designed to fit two unequal halves of the foot and not, as at present, cut as if the foot were the same on each side This would prevent that aggravating pressure which so often is felt, along the first metatarsal and the inner side of the foot and makes the wearer so glad to remove the shoe

These points can all be incorporated in the last and in the footwear if there is the will to improve the fit rather than the desire merely to sell the goods It has been contended that the present shoe-making machines will not work on this type of last, but the technical difficulties can be overcome Shoes of this description have already been made experimentally and tried on nurses in two London hospitals, with relief from the discomfort and pain which these nurses experienced previously This whole difficult problem can be solved if the trade will coöperate

---

ANTISTREPTOLYSIN S TITRES IN RHEUMATIC FEVER

By E W Todd, M D Camb, D P H

DEPUTY DIRECTOR LONDON COUNTY COUNCIL ANTITOXIN ESTABLISHMENT, SUTTON, SURREY

Alvin F Coburn, M D Johns Hopkins

DEPARTMENT OF MEDICINE COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY AND THE PRESBYTERIAN HOSPITAL, NEW YORK CITY AND

A Bradford Hill, D Sc, Ph D Lond

READER IN EPIDEMIOLOGY AND VITAL STATISTICS IN THE UNIVERSITY OF LONDON AT THE LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The titration of sera from rheumatic fever patients for antibodies to various products of hæmolytic streptococci has shown that the antibody titre of the serum is usually increased during the acute phase of illness Thus Todd (1932), Coburn and Pauli (1932), and others have demonstrated an increase in antistreptolysin titre, Hadfield, Magee, and Perry (1934), Myers and Keefer (1935), and Stuart-Harris (1935) an increase of antifibrinolysin, and Swift and Hodge (1936) and Coburn (1936) a late increase in type specific antibody It has recently been found (Todd 1938a, 1938b, 1939) that group A hæmolytic streptococci produce two serologically distinct varieties of hæmolysin, which have been named streptolysin O, to indicate sensitivity to oxygen and streptolysin S, to indicate solubility or extractability in serum When animals are inoculated with living cultures of group A hæmolytic streptococci they produce antibodies to both forms of streptolysin The antistreptolysin O titre in rheumatic fever has been investigated by a number of workers, but no previous observations, we believe, have been reported on the antistreptolysin S titre A series of such observations is now recorded in this paper, derived not only from tests of the sera of patients with rheumatic fever but also, for comparative purposes, of sera of persons unaffected by that disease

DESCRIPTION OF DATA

Sera were obtained from rheumatic and non rheumatic patients in the Presbyterian Hospital New York In all cases group A hæmolytic streptococci had been isolated from the patient's throat, and a similar distribution of Griffith's (1935) serological types was found in the rheumatic and non-rheumatic groups. To determine the normal level of the antistreptolysin S titre (A.S.S), use was made of 118 specimens of serum which had been taken from adults for the Wassermann reaction (kindly supplied by Dr. A. B. Rosher of London). No antistreptolysin O determinations (A.S.O.) were made on this series. From patients known to be infected with hæmolytic streptococci 455 sera were taken, and, with a few exceptions due to insufficient serum, both antibodies were titrated in each. These sera have been classified as follows: (1) 122 sera from 25 non-rheumatic children with, or recovering from, pharyngitis (11 patients) or scarlet fever (14 patients); for this group 121 A S.O. and 115 A S.S. values were available; (2) 89 sera from 16 rheumatic children who had contracted throat infections due to hæmolytic streptococci but had developed no signs of rheumatic activity; for these 88 A S.O and 76 A.S.S. values were available; and (3) 244 sera from 27 children who developed acute rheumatic fever after throat infections by hæmolytic streptococci; for these 242 A.S.O. and 233 A S S. values were available

The antistreptolysin O titrations, clinical observations, determination of the erythrocyte sedimentation-rates and the bacteriology were carried out at the Presbyterian Hospital, New York; the antistreptolysin S titrations at the Belmont Laboratories, Sutton, by the method previously described (Todd 1938a); and the analysis of the figures at the London School of Hygiene and Tropical Medicine.

RESULTS

(1) *Antistreptolysin S. titres.*—Table I shows in full the values of the A S S. titres observed in the sera of the different groups investigated. Initially a comparison was made between the values given by the sera of the non-rheumatic children suffering from pharyngitis and by the sera from the non-rheumatic scarlet-fever cases. Since no significant difference was found between these two groups (in either A S.S or A.S.O. titres), they have been combined in one series. Table I shows that the normal level of the A S S. titre, as indicated by the Wassermann adult group, lies generally between 4 0 and 8·3 units. Values outside that range were rarely observed, and values as high as 8·3 were infrequent, 85 per cent of the observations lying in the narrow interval 4 0–6 3 units, and the arithmetic mean of the distribution being 5·2 (No normal figures for children were available On general grounds they might be expected to give rather lower values than adults who have had more prolonged opportunities of infection.)

For the non-rheumatic children with pharyngitis or scarlet fever the distribution is quite different. Whereas none of the 118 normal sera gave a titre of as much as 12 5 units, 40 (34·7 per cent.) of the 115 sera from these children were at or above this level. Again, 40 per cent of the sera from the infected children gave values of 8 3 or 10 0, and only 9 per cent of the normal sera The arithmetic mean of the former distribution is nearly twice as high as that of the latter, 10 0–5 2, and the shift to a higher scale of values is shown very distinctly by the percentages at the bottom of table I. The difference between the two distributions is considerably more than could be attributed to chance (tested by the χ^2 method on the total distributions given at the top of table I P is far less than 0 01)

Turning to the rheumatic children with pharyngitis but apparently free from rheumatic activity, there is, it will be seen, a still further, but not very pronounced, shift up the A.S S scale of values. Values as low as 5 0–6 3 become less frequent, as high as 20 0 rather more frequent, the difference between the two groups of children being rather more than would be likely to be due to chance (*P* nearly 0 01) The arithmetic mean of this rheumatic group without activity is 11·2.

The titres of rheumatic children with active disease are very widespread and, in fact, extend over the whole range of values recorded for the different groups. On the other hand, they clearly differ both from the normal group and from the two previously discussed groups of children without rheumatic attacks. In comparison with the normals they show a much larger number of relatively high values. Whereas only 9 per cent. of the normal sera gave titres of 8 3–10 0 and none were above that level, 36 per cent. of the actively rheumatic group had titres of 8 3–10 0 and 19 per cent of 12·5 or above. As with the non-rheumatic children infected with the hæmolytic streptococcus, there is in comparison with the normals a shift up the scale of values. That shift, however, is much less pronounced with the actively rheumatic children than with the non-rheumatic and with the unattacked rheumatic children. The latter groups produced some 35–40 per cent of sera with 12 5 or more units, the actively rheumatic group only 19 per cent. Correspondingly the non-rheumatic children and unattacked rheumatic children gave only 10–25 per cent. of sera with 6·3 or less units, whereas nearly half the actively rheumatic

TABLE I—*DISTRIBUTION OF ANTISTREPTOLYSIN S VALUES OBSERVED IN SERA OF DIFFERENT GROUPS*

Anti-streptolysin S units per c cm *of serum*	Adults (Wassermann sera)	Non-rheumatic children: pharyngitis or scarlet fever	Rheumatic children: pharyngitis, no rheumatic attack	Rheumatic children: rheumatic attack	
				Active periods	Inactive periods*
ABSOLUTE NUMBERS OBSERVED					
2·0 or less	1	—	—	6	1
2·5 ..	4	—	—	2	—
3 1 ..	2	—	—	1	—
4·0 ..	28	—	—	4	2
5 0 ..	48	11	1	31	2
6 3 .	24	18	7	30	4
8 3 ..	10	17	21	33	17
10 0 ..	1	20	15	27	22
12 5 .	—	26	17	21	15
15·6 ..	—	12	8	9	3
20 0 ..	—	2	7	2†	1
Total sera .	*118*	*115*	*76*	*166*	*67*
Averages .	5·2	10 0	11 2	8 2	9 0
PERCENTAGE FREQUENCIES					
2 0 or less	0 8	—	—	3 6	1·5
2 5 ..	3 4	—	—	1·2	—
3·1 .	1 7	—	—	0 6	—
4 0 .	23 7	—	—	2·4	3 0
5 0 ..	40·7	9 6	1·3	18·7	3 0
6 3 ..	20·3	15 7	9 2	18·1	6·0
8 3 ..	8 5	14 8	27 6	19 9	25 4
10 0 .	0 8	25·2	19 7	16 3	32·8
12 5	—	22 6	22 4	12 6	22 4
15 6 ..	—	10 4	10 5	5 4	4 5
20 0 ..	—	1·7	9 2	1·2	1 5
Total ..	99 9	100 0	99 9	100 0	100 1
PERCENTAGE FREQUENCIES IN CONDENSED FORM					
6 3 or less	90·6	25 3	10 5	44 6	13 5
8·3–10 0 .	9 3	40 0	47 3	36 2	58·2
12 5 or more	—	34 7	42 1	19 2	28 4

* Pre- and post-activity † One value of 83 3

group gave these low values. The response of the latter group to their infection is clearly and significantly less distinct than that of the former (a test of the two distributions for rheumatic children in active stages and for non-rheumatic children with pharyngitis or scarlet fever gives a P of less than 0·01). Their mean value of 8·2 units lies between those of the normals and the non-rheumatic children.

The last column of table I shows the values observed in the same rheumatic children during their inactive stages—both before and after their period of rheumatic activity. There is apparent much overlap in the values recorded during the active and inactive periods, but the two distributions differ considerably and by more than could be attributed to chance (P less than 0·01). The preponderance of relatively low values observable in the active stages is not apparent in the inactive. Only 13·5 per cent of the sera of the latter are at the low level of 6·3 units or less, against the 44·6 per cent in the active group. The distribution in the inactive periods is much more in keeping with those observed in the groups of non-rheumatic children and of rheumatic children escaping an attack of rheumatism (it does not differ significantly from the former, P approximately 0·08, and just significantly from the latter, P approximately 0·03). The mean value of 9·9 is equivalent to the mean of 10·0 observed in the non-rheumatic group. In short, the figures of table I suggest that in response to infection with hæmolytic streptococcus there is frequently a rise in the antistreptolysin S titre above the normal level in the sera of children without signs of rheumatic activity; in the sera of children with clinical signs of rheumatic activity there is a wide dispersion of values, covering the whole observed range, but the rise to high values is less distinct. The average titre of the latter is intermediate between that of the normal sera and of the sera from children with non-rheumatic hæmolytic streptococcal infections. The distributions are shown diagrammatically in fig 1, in which the three groups without rheumatic activity have been combined.

In table II a further examination is made of the antistreptolysin S titres in the rheumatic group, the observations being subdivided according to the degree of activity of the illness, as judged clinically. It will be seen that after infection with hæmolytic streptococcus but before rheumatic activity manifests itself (rheumatic activity O), the distribution of the A S S values resembles that shown by the non-rheumatic children with pharyngitis or scarlet fever. The percentage of values of 6·3 or below is 23·6 in the former, 25·3 in the latter; at 8·3–10·0 the percentages are 35·3 and 40·0, at 12·5 or more 41·2 and 34·7. As the rheumatic attack develops, however, the proportion of low values distinctly increases to 37·5 per cent at 6·3 units or below in the group with activity + to ++, and to 54·9 per cent in the group with activity +++; the number of high values correspondingly decreases. As the attack declines, the distribution of A S S values reverts, the observations for the ++ to + group being very similar to those of the + to ++ group, and the recovery group (± or O) showing few low values. This sequence is shown diagrammatically in fig 2. That this trend is not merely a function of time is shown by the figures for the non-rheumatic children with pharyngitis or scarlet

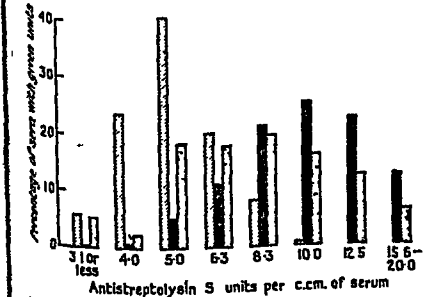


FIG 1—Distribution of antistreptolysin S titres in three different groups: hatched columns represent normal adults (Wassermann sera), black columns children with, or recovering from, hæmolytic streptococcal infections but with no rheumatic activity, and stippled columns children with active rheumatic fever.

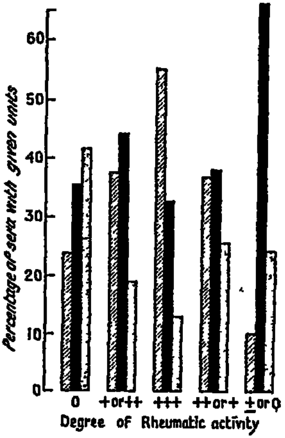


FIG 2—Antistreptolysin S titres at different stages of rheumatic activity: hatched columns represent low values of 6·3 or less, black columns medium values of 8·3–10·0, and stippled columns high values of *12·5 or more*

TABLE II—DISTRIBUTION OF ANTISTREPTOLYSIN S VALUES OBSERVED IN SERA OF CHILDREN WITH RHEUMATIC ATTACKS ACCORDING TO DEGREE OF RHEUMATIC ACTIVITY

Antistreptolysin S units per c.cm of serum	Clinical assessment of rheumatic activity					Non-rheumatic children pharyngitis or scarlet fever	Rheumatic children pharyngitis no rheumatic attack
	O	+ or ++	+++	++ or +	± or O		
ABSOLUTE NUMBERS OBSERVED							
6·3 or less	4	6	39	29	5	29	8
8·3 or 10·0	6	7	23	30	33	46	36
12·5 or more	7	3	9	20	12	40	32
Total	17	16	71	79	50	115	76
PERCENTAGE FREQUENCIES							
6·3 or less	23·6	37·5	54·9	36·8	10·0	25·3	10·5
8·3 or 10·0	35·3	43·8	32·4	38·0	66·0	40·0	47·3
12·5 or more	41·2	18·8	12·7	25·3	24·0	34·7	42·1
Total	100·1	100·1	100·0	100·1	100·0	100·0	99·9

fever. Table III shows that for them the only change in the distribution of titres, apparent at different durations of time after their infection, is a suggestion of an increased incidence of high values at 14–27 days (The numbers involved are small; hence no more than a dichotomy of titres can be made. A test of significance gives a P of nearly 0·5.)

TABLE III—DISTRIBUTION OF ANTISTREPTOLYSIN S VALUES OBSERVED IN SERA OF CHILDREN WITH, OR RECOVERING FROM, PHARYNGITIS OR SCARLET FEVER ACCORDING TO DURATION OF TIME SINCE INFECTION

Antistreptolysin S units per c cm of serum	Percentage frequencies at different times after infection			
	0–6 days	7–13 days	14–27 days	28 or more days
5·0 to 8·3	46	46	28	42
10·0 or more ..	54	54	72	58
No of sera . ..	22	28	29	36

(2) *Antistreptolysin O titres.*—Table IV gives similar details of the antistreptolysin O titres observed in the sera of the different groups Observations by previous workers suggest that titres between 100 and 200 units indicate recent infection by hæmolytic streptococci, whereas titres above 200 units are a more certain indication of recent infection.

For the non-rheumatic children with pharyngitis or scarlet fever the distribution is widespread, but the great majority of values are relatively low—nearly two-thirds are less than 250 units, and only 12 per cent. are 625 units or more. In the group of rheumatic children with pharyngitis but with no rheumatic attack high values, 625 or above, are equally infrequently observed, but low values, 16–125, also become infrequent. In comparison with the sera from the non-rheumatic children there is clearly a slight shift up the scale of values (more than would be due to chance, P less than 0·01), and the arithmetic means for the two groups are 239 and 290. With the children suffering from clinical rheumatism this upward shift is much more emphasised, especially in the active stages, during which nearly 60 per cent. of the values are 625 or more (a quarter are 1000 or more), and only 7 per cent are under 250. In the inactive stages the corresponding figures are 37 and 27 per cent. The mean number of units in the two groups is 476 in the inactive stages and 736 in the active stages The two distributions differ distinctly both from one another and from those shown by the other two groups of children (by more than is likely to be due to chance, P being less than 0·01 in each instance).

TABLE IV—DISTRIBUTION OF ANTISTREPTOLYSIN O VALUES OBSERVED IN SERA OF DIFFERENT GROUPS

Anti-streptolysin O units per c cm of serum	Non-rheumatic children: pharyngitis or scarlet fever	Rheumatic children: pharyngitis, no rheumatic attack	Rheumatic children: rheumatic attack	
			Active periods	Inactive periods*
ABSOLUTE NUMBERS OBSERVED				
16– ..	24	4	—	—
83– ..	21	7	2	5
125– ..	33	35	11	13
250– ..	19	26	40	17
400– ..	9	4	21	8
625– .	7	4	33	11
833– ..	6	5	23	9
1000 or more	2	3	44	5
Total sera ..	121	88	174	68
Averages ..	239	290	736	476
PERCENTAGE FREQUENCIES				
16– ..	19·8	4·5	—	—
83– ..	17·4	8·0	1·1	7·4
125– ..	27·3	39·8	6·3	19·1
250– ..	15·7	29·5	23·0	25·0
400– .	7·4	4·5	12·1	11·8
625– ..	5·8	4·5	19·0	16·2
833– ..	5·0	5·7	13·2	13·2
1000 or more	1·6	3·4	25·3	7·4
Total .	100·0	99·9	100·0	100·1
PERCENTAGE FREQUENCIES IN CONDENSED FORM				
16– .	64·5	52·3	7·4	26·5
250– ..	23·1	34·0	35·1	36·8
625+ .	12·4	13·6	57·5	36·8

* Pre- and post-activity.

TABLE V—DISTRIBUTION OF ANTISTREPTOLYSIN O VALUES OBSERVED IN SERA OF CHILDREN WITH RHEUMATIC ATTACKS ACCORDING TO DEGREE OF RHEUMATIC ACTIVITY

Anti-streptolysin O units per c.cm of serum	Clinical assessment of rheumatic activity					Non-rheumatic children: pharyngitis or scarlet fever	Rheumatic children, pharyngitis, no rheumatic attack
	O	+ or + +	+ + +	+ + or +	± or O		
ABSOLUTE NUMBERS OBSERVED							
16– ..	6	4	6	3	12	78	46
250– .	10	5	29	27	14	28	30
625 or over	1	8	40	52	25	15	12
Total ..	17	17	75	82	51	121	88
PERCENTAGE FREQUENCIES							
16– .	35·3	23·5	8·0	3·7	23·5	64·5	52·3
250– ..	58·8	29·4	38·7	32·9	27·5	23·1	34·0
625 or over	5·9	47·1	53·3	63·4	49·0	12·4	13·6
Total ..	100·0	100·0	100·0	100·0	100·0	100·0	99·9

In table V the distribution of the antistreptolysin O values is examined in relation to the degree of activity of the rheumatic attack. Although in some groups the number of sera is small, the sequence seems to be clear. Before the rheumatic attack (rheumatic activity O) high values of 625 or above are rare; they appear in increasing numbers as the attack passes from activity + or + + to + + + to + + or +. As the attack subsides (activity ± or O), the proportion of high values is still considerable (nearly a half), but there is a substantial decline in comparison with the position at the height of the attack—in fact the distribution has returned to that shown at the time the attack developed (activity + or + +) There is an indication of the same sequence of changes, but on a lower scale, in the sera of the non-rheumatic group when examined in relation to time after infection (table VI).

(3) *Antistreptolysin S and O titres in rheumatic activity.*—There is, as emphasised in previous sections, much variability between one rheumatic patient and another in the antistreptolysin S and O titres as the rheumatic activity rises and falls. Differences

TABLE VI—DISTRIBUTION OF ANTISTREPTOLYSIN O VALUES OBSERVED IN SERA OF CHILDREN WITH, OR RECOVERING FROM, PHARYNGITIS OR SCARLET FEVER ACCORDING TO DURATION OF TIME SINCE INFECTION

Antistreptolysin O units per c cm of serum	Percentage frequencies at different times after infection			
	0–6 days	7–13 days	14–27 days	28 or more days
16–	64	30	26	37
125–	36	57	51	53
625 or more	—	13	[illegible]	10
No of sera	22	30	31	38

between the groups are, however distinct In table VII an attempt has been made to bring together figures to illustrate what appears to be the general trend of the A S S and A S O values in children passing through the acute stage of rheumatic fever The erythrocyte sedimentation-rates have been added to this table The figures show that the A S O titre is at a high level during the most acute stage of disease, thus confirming the previous observations of a number of workers On the other hand, the lowest level of A.S S occurs during the most acute stage of the rheumatic fever, and the titre rises again as he symptoms subside Whether this relative eficiency of A S.S plays a part in the pathogenesis f acute rheumatic manifestations remains to be etermined

TABLE VII—GENERAL TREND OF ANTISTREPTOLYSIN S AND O VALUES IN CHILDREN PASSING THROUGH AN ATTACK OF RHEUMATIC FEVER

—	Phase		Days after streptococcal infection	Degree of rheumatic activity	Erythrocyte sedimentation rate	A S S titre	A S O titre
I	Period of streptococcal pharyngitis		2– 5	O	10– 50	10 0–12 5	250 or less
II	Silent period No symptoms		6– 14	O	10– 40	8 3–10·0	250– 600
III	Rheumatic activity	1	20– 40	+ to + +	60–100	8 3 or less	500–1250
		2	20– 60	+ + +	80–130	6 3 or less	625–2500
		3	50–150	+ + to +	30–100	8 3 or more	625–2500
IV	Period of recovery		70–200	± or O	10– 30	10·0 or more	125– 833

SUMMARY

An investigation has been made of the antistreptolysin S and antistreptolysin O titres in the sera of (1) normal adults, (2) non rheumatic children with, or recovering from, hæmolytic streptococcal infections, (3) rheumatic children suffering from similar infections but with no rheumatic activity, and (4) rheumatic children in whom the streptococcal infection was followed by an acute attack of rheumatic fever

Although, naturally, there is much variability from one individual to another, the general trend of the figures leads to the following conclusions

(1) In response to infection with the hæmolytic streptococcus there is a rise in the antistreptolysin S titre considerably above the normal level in the sera of non rheumatic children and in the sera of rheumatic children without signs of rheumatic activity

(2) In the sera of children with clinical signs of rheumatic activity the antistreptolysin S titre, although often above normal, tends to remain relatively low

(3) Sera taken during the period of acute rheumatic fever show lower antistreptolysin S titres than sera taken from the same patients during periods of rheumatic inactivity During rheumatic attacks the titre varies with the intensity of the rheumatic process, tending to be lowest when the clinical symptoms are most pronounced

(4) The antistreptolysin O titres tend to be higher in rheumatic subjects who contracted pharyngitis but escaped rheumatic attack than in non rheumatic children with pharyngitis or scarlet fever A more pronounced increase is shown by children with active rheumatic fever, and the titre tends to be highest at the height of their attack or just subsequently

(5) In short, there is a striking contrast between the low antistreptolysin S titres and the high antistreptolysin O titres of active rheumatic fever

REFERENCES

Coburn, A F (1936) *Lancet* 2, 1025
— and Pauli, R H (1932) *J exp Med* 56, 651
Griffith F (1935) *J Hyg*, *Camb* 34, 542
Hadfield, G, Magee, V, and Perry, C B (1934) *Lancet*, 1, 834
Myers, W K., and Keefer, C S (1935) *J clin Invest* 14 119
Stuart Harris, C H (1935) *Lancet*, 2, 1456
Swift, H F, and Hodge, B E (1936) *Proc Soc exp Biol*, *N Y* 34 849
Todd, E W (1932) *Brit J exp Path* 13, 248
— (1938a) *J Path Bact* 47, 423
— (1938b) *Brit J exp Path* 19, 367
— (1939) *J Hyg*, *Camb* 39, 1

EXOPHTHALMOS IN GRAVES'S DISEASE DESPITE SYMPATHETIC PARALYSIS

By W Russell Brain, D M Oxfd, F R C P
PHYSICIAN IN CHARGE OF OUTPATIENTS AT THE LONDON HOSPITAL PHYSICIAN TO THE MAIDA VALE HOSPITAL FOR NERVOUS DISEASES

The possible rôle of sympathetic overactivity in the production of the ocular signs of Graves's disease has been much discussed, especially recently, and experimental work has been done in the attempt to elucidate it The following unique case in which Graves's disease, accompanied by all the usual ocular manifestations, developed in a patient with paralysis of the ocular sympathetic, resulting from long-standing syringomyelia, seems worth reporting

CASE RECORD

A married woman, aged 31, attended the London Hospital under the care of Dr R V. Christie in 1936 In 1921 she had first noticed wasting of the muscles of the right hand, which had been very slowly progressive In 1931 she found that the left hand was also becoming affected in the same way She had difficulty in gripping objects In 1931 she became pregnant for the first time For the last six weeks of her pregnancy she was in hospital because of kidney trouble but was delivered of a healthy child Since then she had no further œdema but complained of occasional headaches, palpitation, hot flushes, general weakness, shortness of breath on exertion, irritability and nervousness, and increased prominence and watering of the eyes She lost 2 st in weight Her menstrual periods became irregular in 1934 and ceased in January, 1936 She had had scarlet fever at 20 Her family history contained nothing relevant

On admission.—Ocular signs: there was moderate bilateral exophthalmos, the left eye being slightly more prominent than the right. Retraction of both upper lids was noticed, being more pronounced in the left than the right (fig. 1). Both pupils were much contracted, the right being smaller than the left. They were not quite circular, but both reacted briskly to light and on accommodation.

General signs: there was slight diffuse enlargement of the thyroid. The pulse was regular, the rate usually being 90–100; blood-pressure 155/75; heart, lungs, and abdomen normal. Basal metabolic rate: April 1, 1936, 131 per cent. of normal; April 15, 109 per cent. of normal; April 22, 115 per cent. of normal Creatinine excretion 0·98 g. for twenty-four hours. Creatine excretion 0·70 g. for twenty-four hours.

Neurological signs: fundi normal; pupils described above. Ocular movements full. Remaining cranial nerves normal Much wasting of the intrinsic muscles of the hands and to a less extent the forearm muscles, in both cases the right being more affected than the left. There was great weakness of movements of the fingers and wrists on both sides. There were wasting of the right calf, which measured 1 in. less than the left, and slight weakness of movements of the right ankle. The supinator and biceps jerks were brisk and equal and the triceps jerks absent. The abdominal reflexes were present; the knee-jerks and ankle-jerks were exaggerated, especially on the right side, and the plantar reflexes were extensor

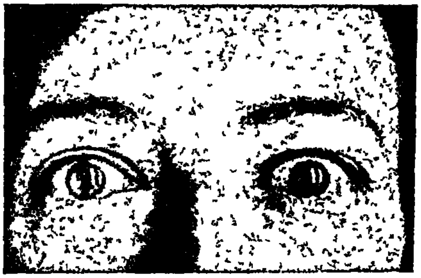


FIG. 1—Retraction of both upper eyelids, especially the left, and contraction of both pupils, especially the right (May 13, 1936)

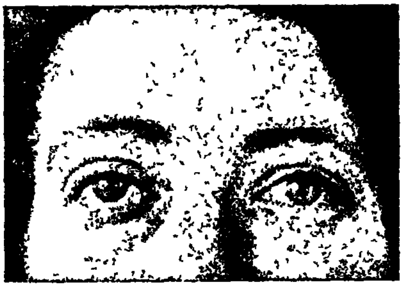


FIG. 2—Slight ptosis of right upper eyelid; no retraction (April 11, 1938, after recovery from hyperthyroidism).

Appreciation of pain, heat, and cold was impaired over the left side of the trunk below the nipple line and over the left lower limb Appreciation of light touch and postural sense was unimpaired, but appreciation of vibration was slightly diminished on the left shin. There was scattered pigmentation of the café-au-lait type on both sides of the face, neck, and upper part of the chest and back.

Subsequent course—The patient received medical treatment for her hyperthyroidism and was discharged from hospital on April 27, 1936 The symptoms of hyperthyroidism steadily diminished, and on April 11, 1938, her thyroid was just palpable and her pulse-rate was 81. The eyes were still slightly prominent (exophthalmometer reading: right 16, left 15), but the lid retraction had disappeared, giving place to slight ptosis of the right upper lid, whereas the left palpebral fissure was normal (fig. 2) The pupils measured right 3 mm., left 4 mm. After the instillation of 2 per cent solution of cocaine into the conjunctival sacs the size of the right pupil remained unchanged, while the left dilated to 6 mm. The condition of the nervous system had not materially altered.

SUMMARY OF CASE

In a woman, aged 31, with syringomyelia of fifteen years' duration compression of the grey matter of the spinal cord at the level of the eighth cervical and first dorsal segments caused, besides wasting of the muscles of the hands and forearms, interference with the functions of the ocular sympathetic, amounting to paralysis on the right side and partial paralysis on the left. The patient developed exophthalmic goitre and exhibited bilateral exophthalmos and retraction of the upper lids, the lid retraction being slightly more pronounced on the left than on the right side.

DISCUSSION

The belief that overactivity of the sympathetic nervous system is responsible for the exophthalmos and lid retraction characteristic of Graves's disease seems to have originated in the observation that electrical stimulation of the cervical sympathetic in animals causes both exophthalmos and retraction of the eyelids It was soon pointed out, however, that one feature in the picture of overactivity of the ocular sympathetic is lacking in Graves's disease—namely, dilatation of the pupil. Some ingenuity has been exercised by physiologists in their attempts to overcome this difficulty. Thus, Justin-Besançon, Kohler, Schiff-Wertheimer, and Soulié (1931) claimed that by using in combination a drug such as ephedrine, which caused exophthalmos, with pilocarpine, which contracted the pupil, it was possible to reproduce the ocular picture of Graves's disease More recently Brunton (1935a), by varying the strength of the faradic currents, with which the cervical sympathetic of the cat was stimulated, found that it was possible to induce retraction of the eyelids, but not exophthalmos, without pupillary dilatation Brunton (1935b) produced retraction of the eyelids, often with little dilatation of the pupil, and in a small number of cases exophthalmos, by administering ephedrine to cats and dogs under an anæsthetic These conditions, however, seem somewhat remote from Graves's disease, and further objections to the view that the sympathetic is responsible for the exophthalmos and lid retraction are to be found in observations, such as those of Shaw (1929), that cervical sympathectomy does not relieve the exophthalmos of Graves's disease and in the recognition that in exophthalmic ophthalmoplegia the exophthalmos is secondary to an intense œdema of the orbital contents (Brain and Turnbull 1938)

The studies of Pochin (1937–38, 1939a, 1939b) have thrown light on the problem from a new angle. Pochin (1939a) has observed the effects of the electrical stimulation of the cervical sympathetic in three patients during the operation of cervical sympathectomy. He did not observe exophthalmos, but in all cases elevation of the upper lid, depression of the lower lid, and dilatation of the pupil developed He found that section of the cervical sympathetic caused relaxation of both upper and lower lids in man. Pochin (1937–38, 1939b) has found that in cases of Graves's disease with unilateral lid retraction, on the side on which the upper lid is retracted the lower lid is raised relatively to the cornea, and that depression of the lower lid in Graves's disease develops only in the presence of exophthalmos, of which it is a mechanical consequence. This differs from the effect of sympathetic stimulation, which causes retraction of the lower as well as of the upper lid.

In the patient who is the subject of this paper the retraction was confined to the upper lids but was greater on the left side, shown not only by the wider zone of sclerotic visible on that side but also by the wider zone of the upper lid visible on the right (fig. 1). This difference in the height of the two upper lids appears to be a persistence of the difference present in their usual state, when the right upper lid shows a slight degree of ptosis due to the ocular sympathetic paralysis (fig. 2).

It is clear, therefore, that pre-existing paralysis of the ocular sympathetic does not prevent the development of either exophthalmos or lid retraction in Graves's disease, nor does an inequality in the degree of sympathetic paralysis cause an inequality in the degree of exophthalmos. It is true that the absolute lid retraction differed on the two sides, being less on the side of the greater sympathetic paralysis, but, if the usual position of the right upper lid was one of slight ptosis, the relative lid retraction was equal on the two sides. It may be inferred from these observations that the sympathetic plays no part in the production of the ocular signs of Graves's disease.

SUMMARY

(1) The case is reported of a patient who, suffering from paralysis of the ocular sympathetic as a result of syringomyelia, developed Graves's disease and showed both exophthalmos and retraction of the upper lids.

(2) The conclusion is drawn that these ocular abnormalities in Graves's disease are not produced by overactivity of the sympathetic.

I am indebted to Prof. R. V. Christie for kindly referring this patient to me.

REFERENCES

Brain, W. R., and Turnbull, H. M. (1938) *Quart. J. Med.* 7, 293.
Brunton, C. E. (1935a) *J. Physiol.* 84, 40 P.
— (1935b) *Ibid*, p. 334.
Justin-Besançon, L., Kohler, D., Schiff-Wertheimer, and Soulié, P. (1931) *Bull. Soc. méd. Hôp. Paris* 47, 1883.
Pochin, E. E. (1937–38) *Clin. Sci.* 3, 197.
— (1939a) *Ibid*, 4, 79. (1939b) *Ibid*, p. 91.
Shaw, R. C. (1920) *Brit. med. J.* 1, 495.

PRESERVATION OF STORED BLOOD

By Montague Maizels, M.D. Lond., M.R.C.P.
CLINICAL PATHOLOGIST AT UNIVERSITY COLLEGE HOSPITAL, LONDON AND
Norman Whittaker, M.B. Camb., M.R.C.P.
(From Emergency Blood Transfusion Centre, Maidstone)

This paper is intended to show that the usual anticoagulant solutions employed in the storage of blood are hypertonic, and that the addition of polysaccharide definitely favours the survival of erythrocytes.

HYPERTONICITY OF CITRATE SOLUTIONS

The solution commonly used to prevent coagulation of stored blood consists of sodium chloride 0·85 per cent. and sodium citrate 1·05 per cent. (Harington and Miles 1939), 1 part of this solution being added to 2 parts of blood. The mixture usually keeps well for four weeks at 2° C., hæmolysis being generally less than 10 per cent. at the end of this period; but fragility experiments carried out on this stored blood show that there is an increased hæmolysis in a 0·9 per cent. solution of sodium chloride (table II). This probably means that the erythrocytes have become relatively hypertonic on storage and that a 0·9 per cent. solution of sodium chloride, which is isotonic with fresh cells, has now become relatively hypotonic.

Resistance of erythrocytes to saline hæmolysis depends on their power of swelling so as to accommodate a sufficient inflow of water to render the cell contents iso-osmotic with the external medium. This is mainly accomplished by a process of "taking up slack" whereby the cell is converted from a biconcave disk to a biconvex or even globular shape, without the cell membrane stretching at all. The maximal swelling that can be measured in hypotonic solutions is about 50 per cent. (Maizels), and this can be fully covered by change in shape without increase in surface area. Thus cell fragility to hypotonic salt solutions is mainly an expression of changes in the salt and water and the osmotic relations of the erythrocyte and does not primarily indicate weakness in the cell envelope.

In acholuric jaundice the fresh cell in its native plasma is not biconcave but somewhat spherical; its shape already tends to give maximal volume for minimal surface area. In other words, it has very little "slack" available, and even in its own plasma it is half way towards hæmolysis. For this reason it hæmolyses readily in hypotonic solutions that are not hæmolytic for normal cells. In the case of stored blood one can readily imagine the cell losing some of its normal impermeability and slowly allowing salts and water to diffuse inwards until the cell becomes globular. Such a cell would hæmolyse more easily than usual in hypotonic saline; but, if the original citrate-saline plasma were isotonic with fresh cells, the stored cells, though partially distended with isotonic solution, would not show any further distension or hæmolysis in normal saline. That further hæmolysis does take place (table II) is evidence that the standard citrate-saline solution is hypertonic. More direct evidence was secured in the following way:—

Method.—A special type of centrifuge tube was used, drawn out at one end into a long stout-walled capillary, which was graduated and calibrated. Blood, to which heparin had been added as an anticoagulant, was placed in these capillaries with a capillary pipette. Eight such tubes were centrifuged for 15 min. at 3000 r.p.m., and the volumes of the packed erythrocyte columns were noted. The cells were then resuspended in 100 volumes of the test solution with the capillary pipette. After 20 min. the tubes were recentrifuged and the new volumes of the cell columns measured. The second volume, V_2, divided by the first, V_1, gives the change of volume. In the present experiment, various dilutions of citrate and saline were used (table I). The figures were obtained from ten different bloods. The margin of variation is fairly wide, probably owing to differing contents of oxygen, carbon dioxide and lactic acid.

TABLE I—CHANGES IN VOLUME OF ERYTHROCYTES IN DIFFERENT SOLUTIONS

Salt solution	Grammes per cent.	pH	V_2/V_1 per cent.
Sodium chloride	0·9	7·1	100·5 ± 1·5
„ citrate	2·5	7·8	93·5 ± 1·5
„ „	2·0	7·8	99·5 ± 2
„ „	1·75	—	107·5 ± 2
„ „	1·5	—	118 ± 3
„ chloride and sodium citrate	0·85+1·05	—	89·5 ± 1

If these figures are plotted, the 100 per cent. line is crossed at a point corresponding to sodium citrate 2·0 ± 0·00 g. per cent. Hence sodium-citrate solution 2·0 g. per cent. at pH 7·8 is isotonic with 0·9 per cent. sodium citrate at pH 7·1 and with fresh human erythrocytes. Table I also shows that the standard citrate-saline solution, 1·05 + 0·85 (Harington and Miles 1939), is very hypertonic. In this experiment, where much cell shrinkage is noted, citrate-saline and cells were mixed in the proportion of 100 to 1.

To measure cell shrinkage when blood and citrate-saline are mixed in the proportions used under ordinary conditions of collection, heparinised blood was centrifuged in four graduated tubes (comparator tubes from Haldane hæmoglobinometers are suitable). The volume of plasma and red cells in each tube was noted. To one pair only a volume of citrate-saline solution was added equal to half the volume of blood, so that the first pair of tubes contained centrifuged blood only, while the second contained centrifuged blood plus half its volume of citrate-saline solution All four tubes were then shaken and after an interval recentrifuged. The cells of the first pair of tubes showed no change in volume; those with the citrate-saline mixture had shrunk by 5 per cent, which in this range of salt concentration is equivalent to an increase of 12 per cent in general tonicity.

It therefore seems clear that solutions containing sodium chloride 0·85 per cent. and sodium citrate 1·05 per cent. are definitely hypertonic, and that a blood system containing a third of such a diluent is somewhat hypertonic Such a solution certainly permits erythrocytes to survive for long periods, and it is possible that a hypertonic solution may favour survival On the other hand, it is perhaps more likely that hypertonicity would favour loss of cell impermeability to salts and would favour hæmolysis. From the data in table I it appears that a solution containing sodium chloride 0·43 per cent and sodium citrate 1·05 per cent. is isotonic with human erythrocytes The use of this solution as a diluent and anticoagulant is being investigated.

It may perhaps be of interest to compare the tonicities of solutions advocated by various authors: I.H.T. (quoted by Elliott, Macfarlane and Vaughan 1939) is isotonic; so is the preparation of Howkins and Brewer (1939) The preparation of Harington and Miles (1939), which is advocated by the Medical Research Council and is in general use, is, as we have previously seen, hypertonic, and so is that of Page, Seager and Ward (1939). The statement made by Halbrecht (1939), that sodium citrate 3·8 per cent. is isotonic cannot be sustained. When 1 part of this solution is added to 9 parts of blood, the overall tonicity is 10 per cent in excess of the physiological level.

PRESERVATION WITH POLYSACCHARIDE

In the diluent recommended by Harington and Miles (1939), dextrose was present to give a final concentration of about 0·2 per cent. in the citrate-saline blood mixture. They were definitely of the opinion that the dextrose prolonged the life of the erythrocytes during the three or four weeks of their observation Dextrose was subsequently omitted from the solution recommended by the Medical Research Council (1939), possibly because of its tendency to caramelise on autoclaving. There is no evidence that the trace of caramel observed is in any way harmful, and in any case it can be avoided by dry sterilisation of the dextrose However, the omission of dextrose from the standard citrate-saline solution gains justification from the fact that blood mixed with the simpler solution can be used safely for three and often even for four weeks, though after a month's storage deterioration is rapid. It appeared to us that though the addition of 0·3 per cent dextrose might improve the condition of blood during the first week or so of storage it was not likely to have much effect after a month's storage, because sooner or later it would be destroyed by glycolysis We therefore tried the effect of adding large amounts of dextrose (7 per cent) but this increases hæmolysis—possibly because the solution was too concentrated.

It then seemed possible to us that some substance of high molecular weight and very low osmotic pressure might form a reservoir from which dextrose could be derived, and that such a substance might favour the preservation of blood. Substances that appeared to be suitable were dextrin and starch. These were added to the citrate-saline solution of Harington and Miles It was found that both these polysaccharides particularly dextrin, appeared to inhibit hæmolysis.

Deterioration of erythrocytes was measured in three ways: (1) the percentage of cells hæmolysed; (2) the colour-index; and (3) fragility in sodium-chloride solutions.

(1) *The percentage of cells hæmolysed* was estimated by centrifuging the mixed stored blood in a series of graduated tubes (comparator tubes of Haldane hæmoglobinometers) The volume of cells (A) and of the supernatant plasma (B) were measured, and the colour of the plasma was matched with 0·02 c.cm. of packed erythrocytes laked with ammonia and diluted with citrate plasma from freshly collected blood If the volume of the diluent is X c.cm, the percentage of hæmolysis in the cells is 2B − AX

(2) *Colour-index.*—In stored blood, as hæmolysis takes place, the erythrocytes decrease, the hæmoglobin remains constant, and therefore the colour-index rises. Its excess over 1 may be taken as a rough index of hæmolysis

(3) *Fragility in sodium-chloride solutions.*—Blood 1 part was added to 19 parts of salt solutions. Two dilutions of salt were used: 0·9 and 0·8 per cent. Hæmolysis was measured by comparison with appropriate standard dilutions of the blood hæmolysed in distilled water The findings are here summarised.

TABLE II—FRAGILITY OF ERYTHROCYTES IN SODIUM-CHLORIDE SOLUTIONS

Expt	Previous storage (days)	Substance added Solution NaCl 0·85 to Na citrate 1·05	Grammes per cent.	Hæmolysed cells per cent.	Colour index	Percentage hæmolysis in NaCl	
						0·9	0·8
1	53	Dextrin*(control)	0	8·4	1·08	45	55
	53	,, ,,	0	7·9	1·09	55	65
	53	,, (added)	1	2·0	1·02	30	50
	53	,, ,,	2	1·1	0·89	7	30
	53	,, ,,	4	1·2	0·93	5	20
2	49	,, (control)	0	11·2	1·11	90	90
	49	,, (,,)	0	8·7	1·15	95	95
	49	,, (added)	1	5·6	0·93	35	65
	49	,, ,,	2	3·0	0·96	25	55
	49	,, ,,	4	3·1	0·90	15	45
3	18	,, (control)	0	5·7	1·0	40	65
	18	,, (added)	3	1·1	0·91	10	40
4	21	,, (control)	0	4·4	1·09	30	65
	21	,, (added)	3	1·5	0·99	9	35
	21	Starch ,,	0·6	3·3	1·04	10	37

* The dextrin contains 5 per cent dextrose.

The systems consisted of 1 part of citrate-saline solution and 2 parts of blood to which dextrin or, in one instance, starch had been added. It will be seen that when dextrin, and to a lesser extent starch, is added, the plasma shows much less staining with hæmoglobin, indicating that fewer cells have been hæmolysed during storage; the colour-index is lower, and the resistance of the cells to saline hæmolysis is greater. The number of cases is few, but the results though not conclusive are consistent and suggestive It therefore appears probable that, when polysaccharide is added to shed blood, the erythrocytes remain in good condition for at least seven weeks; it is hoped to report further results after three months' storage.

Whether the effects of adding polysaccharide are due indirectly to the liberation of monosaccharide and how polysaccharide acts either directly or indirectly in maintaining the integrity of blood cells have not yet been determined. The problem of how long polysaccharide persists as such in shed blood is being investigated. Possibly starch is inefficient because it can only be used in low concentration; if a high content is present, the system gels. At present the suggestion is put forward on experimental grounds that the following is a suitable diluent for blood: sodium citrate 1.05 per cent., sodium chloride 0.43 per cent., dextrin 8.5 per cent., 180 c.cm. of this solution being mixed with 360 *c.cm. of blood. The dextrin must be pure (alcohol-precipitated B.D.H.).* It caramelises slightly on autoclaving; if this is disliked, it may be minimised by dry sterilisation in an ampoule. It may then be added to the citrate saline solution immediately before use.

There is no reason to suppose that bloods stored with polysaccharide would develop toxic properties, but clearly this possibility must be investigated by experiments on animals before a trial is made in emergency transfusion.

CONCLUSIONS

Many of the solutions added to blood for the prevention of coagulation are hypertonic when compared with fresh erythrocytes. The mixture resulting from the addition is also hypertonic.

The following solution is isotonic with fresh erythrocytes: sodium chloride 0.43 per cent., sodium citrate 1.05 per cent., and on experimental grounds should be preferred to other citrate solutions.

The addition of dextrin to citrate saline blood mixtures enables storage to be continued for at least seven weeks, at the end of which hæmolysis is less than half that observed in a simple citrate saline blood control.

REFERENCES

Elliott, G. A., Macfarlane, R. G., and Vaughan, J. M. (1939) *Lancet*, 1, 384.
Halbrecht, J. (1939) *Ibid*, p. 202.
Harington, C. R., and Miles, A. A. (1939) *Ibid*, p. 1348.
Howkins, J., and Brewer, H. F. (1939) *Ibid*, p. 133.
Medical Research Council (1939) Blood Transfusion Outfit.
Page, A. P. M., Seager, K. G., Ward, E. M. (1939) *Lancet*, 1, 700.

PERNICIOUS ANÆMIA IN A CHILD

By W. Lees Templeton, M.D. Glasg.

ASSISTANT PHYSICIAN AND REGISTRAR TO THE LONDON HOMŒOPATHIC HOSPITAL

Pernicious anæmia is recognised as being generally a disease of adult life; indeed, some observers draw attention to the fact that the average age in pernicious anæmia is also the cancer age—i.e., over 50. It has only rarely been observed under the age of 20. The average age in 550 cases seen by Murphy[1] was 55, and 72 per cent. of the patients developed the disease after the age of 50. According to Murphy, reports of pernicious anæmia in children not only are rare but few are supported by unequivocal evidence. He has seen one case only under 20 and that in a girl aged 12. The following case is reported as an example of pernicious anæmia in a girl aged 14, though there seems little doubt that she had signs and symptoms of the same condition for at least three years previously—i.e., from the age of 11.

The patient, a girl aged 14, had always been ailing. From the first week of birth feeding had been difficult. She never ate a square meal. Breakfast was the principal meal of the day. Fat had been unusually well tolerated, particularly pork. Meat of any other sort was abhorred. There was nausea at the sight of most meals, followed by a loose stool and a feeling of distress. For the past three years there were periods of improvement, when the weight went up and she had a little more energy. Then would come a relapse ushered in by anorexia, fever rarely higher than 100° F., pallor, and extreme weakness. This would last for a week or so, and then there would be a gradual improvement, and so the cycle went on.

For the past year she began to have deep, painful, and punched out buccal ulcers on tongue, cheeks, and lips, and her tongue began to look beefy. Pernicious anæmia was a possible diagnosis, but the age seemed against it, and a blood count showed a secondary anæmia with a colour-index under 1. Slight icterus was noted but no jaundice. Examination of the stool showed nothing abnormal.

In January, 1939, she was seen with symptoms of a cold: temperature 100° F., pulse-rate 100, but this subsided quickly. On May 10 she was again seen with fever, no complaint, no signs of cold, but she looked extremely pallid and more ill than ever before. The whole mouth was ulcerated. The temperature swung from 100° F. in the morning to 101° or 102° F. in the evening. Blood-count showed 8300 leucocytes, of which 62 per cent. were polymorphs, 34 per cent. lymphocytes, 3 per cent. large mononuclears, and 1 per cent. eosinophils. Widal negative. Agglutination against *B. abortus* negative. Blood fragility normal. Urine contained a trace of albumin and no casts.

On June 2 the blood-count for the first time showed a colour-index above 1. The red cells numbered 2,040,000, hæmoglobin 47 per cent., white cells 6100, and colour-index 1.1. There was anisocytosis, macrocytosis, microcytosis, poikilocytosis, and polychromasia. No nucleated cells were seen.

It was now suggested by the pathologist, Dr. H. Schwabacher, that the case might indeed be a pernicious anæmia.

A fractional test-meal showed complete achlorhydria. Campolon 2 c.cm. was injected every day for a week, but no improvement was noted in blood or in general condition. Full doses of iron were then given in addition to the campolon, but still there was no improvement; in fact the patient seemed to be going downhill.

Anahæmin 2 c.cm. every alternate day was then substituted for campolon, and immediately there was a response. A blood count on June 22 showed 2,700,000 red cells and 60 per cent. hæmoglobin; on June 29 3,000,000 red cells and 70 per cent. hæmoglobin; on July 6 3,250,000 red cells and 80 per cent. hæmoglobin; and on July 13 3,600,000 red cells and 80 per cent. hæmoglobin.

Anahæmin was now given every fourth day. Progress was continuous, and on August 28 the count was 4,500,000 red cells and 100 per cent. hæmoglobin. The patient was becoming fat, and she menstruated for the first time.

Fever is said to be commonly present during the relapses of pernicious anæmia, though rarely above 100° F., but in this case the higher temperatures could well be explained by the ulceration of the mouth. This seems to be a true case of pernicious anæmia; apparently the inborn error of metabolism—the achlorhydria—was at the back of the patient's continued ill health since birth. The history of relapses is typical, and possibly the onset of puberty and its consequent strain on the whole economy was the precipitating event. In my opinion the patient had a series of relapses from which she recovered without aid and without recognition of the true cause.

The history suggests that there may be a considerable number of cases of ill health in children due either to achlorhydria or to incipient pernicious anæmia.

The incidence of buccal ulcers is also of interest, for some observers have noted that the administration of liver extracts has been of value in treating this otherwise intractable condition. Perhaps the successful cases are those where the pernicious anæmia factor is deficient or absent.

---

[1] Murphy's Anemia in Practice, p. 195.

REVIEWS AND NOTICES OF BOOKS

Maladies de l'intestin

By R. BENSAUDE, honorary physician to the Hôpital Saint-Antoine, Paris. With the collaboration of A. Cain, A. Lambling, P Rachet, A. Bensaude, F. Bertillon, Massot, E. Sidi. Vol. IV. Paris: Masson et Cie. 1939 Pp 371 Frs.90.

THIS volume is a brilliant reflection of the teaching of a great master of proctology. It will be treasured especially by those who knew Raoul Bensaude personally by visiting the rectal clinic at the Saint-Antoine which his dynamic personality made world-famous. Almost half the book is concerned with hæmorrhoids; every aspect of pathology, diagnosis and treatment is discussed Much is said on the use and value of sclerosing injections, novel features are diathermy coagulation and the use of radiotherapy to promote the resolution of thrombosed and infected internal piles. The need for a complete examination in cases of piles is illustrated by the discovery of a recto-sigmoid carcinoma in about 20 per cent. of cases sent to the clinic as suffering from hæmorrhoids. Throughout the book the medical aspect is to the fore, Bensaude's great experience and his facility for clarifying difficult subjects are seen to advantage in the chapters on ulcerative colitis and rectal stricture where surgical measures are scarcely described. In other places, injection methods and minor surgical procedures are advocated in place of the usual radical operations. In anal fissure, for instance, only 8 out of 170 cases were regarded as requiring surgical treatment, the remainder were cured by local treatment or the deep injection of oil-soluble anæsthetics, sentinel tags being removed by a diathermy snare In the final chapter a case of actinomycosis of the rectum is recorded in detail. The text is embellished with 97 line drawings

The frontispiece is a photograph of Dr. Raoul Bensaude, and on the opposite page is a tribute to his memory by the seven colleagues who were associated with him in the preparation of this volume

Modern Methods of Feeding in Infancy and Childhood

(7th ed.) By DONALD PATERSON, M D. Edin, F.R C P, physician for diseases of children to the Westminster Hospital, physician to the Hospital for Sick Children, Great Ormond Street; and J. FOREST SMITH, F.R.C P, physician in charge of the children's department at St. Thomas's Hospital London: Constable and Co. 1939. Pp 219 7s. 6d. (*Diet Sheets*, No 1–8, obtainable from the publishers, 9*d.* per set.)

THIS book has reached its seventh edition in thirteen years It is easy to see why. The feeding of children is covered in 151 pages in a comprehensible, often dogmatic, way which is appreciated by medical students, practitioners and nurses. These chapters include a wealth of concrete information about the composition of manufactured foods, and thus make the book essential for the specialist in infant feeding. There are eight sheets (which can be bought separately) of diets for normal children of all ages The final 68 pages contain further information about common foods, physiological tables, reprinted pædiatric examination papers, and an index which is fairly good without being entirely accurate This edition is little changed from last year's, but has been brought up to date in some respects (the authors note that sulphonamide is excreted in human milk) The information about vitamins has not been quite so modernised. the various fractions of vitamin B_2, vitamin K, and citrin are not considered; irradiated milk receives only passing mention in the text, and does not appear as such in the index Sources of vitamin C could with advantage be discussed from a more quantitative point of view. Incidentally, a quantitative table of vitamin preparations obtainable commercially would be a useful supplement to the tables of the composition of infant foods.

Functional Disorders of the Foot

Their Diagnosis and Treatment. By FRANK D DICKSON, M D., F A.C.S., orthopædic surgeon, St. Luke's, Kansas City and Wheatley Hospitals, Kansas City, Missouri; and REX L. DIVELEY, A.B., M.D., F A.C.S, orthopædic surgeon to the hospitals. London: J. B. Lippincott Company. 1939. Pp. 305. 21*s.*

UNDER their somewhat ambiguous title the authors have included the usual postural deformities, pes planus and pes cavus, and also the minor surgical diseases of the foot and toes, hallux valgus and rigidus, Kohler's disease, corns, and so on In considering the acquired postural diseases, conservative treatment by various supports and wedges is fully dealt with. Not all will agree with the methods advocated. A short chapter on footwear is followed by several on the minor surgical affections of the feet and toes. These chapters are well written and contain useful conservative treatments for these troublesome conditions which are apt to be dismissed in a few words in larger textbooks. The final chapters on strapping and exercises are also useful. The major surgical foot disorders—clubfoot and acquired paralytic deformities—are not mentioned.

Halliburton's Handbook of Physiology and Biochemistry

(36th ed.) By the late W. D. HALLIBURTON, M D., F.R C.P, F.R.S., formerly professor of physiology, University of London at King's College; and R. J. S. MCDOWALL, M.D. Edin., D.Sc., F.R.C.P.E, professor of physiology in the University of London at King's College. London: John Murray. 1939. Pp. 977. 18*s.*

WHEN a book has achieved its thirty-sixth edition, there must be something about it which makes it very much worth while. Halliburton is still the only volume of reasonable size which includes all the physiology and biochemistry which the medical student must know. Not only is it a handbook; its 100 blank pages make it also a potential notebook. If at times the interpolations of new material at its many revisions make reading jerky, this is more than compensated for by its continuing as up-to-date as ever. A true and trusted student's friend

A Handbook of Tropical Diseases

(2nd ed.) By J. C. BANERJEA, M.B. Calcutta, M.R.C P., hon. junior visiting physician, Medical College Hospitals, Calcutta; and P. B. BHATTACHARYA, M B., D.T M. Bengal Medical Service (Upper). Calcutta: U N. Dhur and Co. Pp. 113. 15*s.*

THIS book is designed for Indian students and practitioners, and consequently tropical conditions such as trypanosomiasis, yellow fever and certain helminthic infections which are not indigenous to India are omitted. Within its designed limitations the book will have a useful field, for it includes much sound knowledge clearly and concisely set out.

Community Health Organisation

Edited by IRA V HISCOCK, professor of public health, Yale University school of medicine London Humphrey Milford, Oxford University Press 1939 Pp 318 10*s* 6*d*

Rural Medicine

Proceedings of the Conference held at Cooperstown, New York, 1938 Springfield Charles C Thomas 1939 Pp 268 $3 50

THE first of these books gives as lucid an account as its complicated structure permits of public health organisation in the United States, the second shows how our American colleagues surmount the complexities of rural health practice Rural districts present the only remaining field in which the march and methods of spread of infectious diseases can be studied with accuracy, a point which Americans fully realise Private practice in remote sparsely populated districts has grave difficulties, not the least of which is lack of modern aids to diagnosis and treatment, in America the supply of these is a duty of the public health service The organisation of the health services of the States is bewildering in its variations, for it differs in each state and in each of the communes which make up a state, but under the lead of the Health Department of the Federal Government there has been steady progress toward uniformity in health benefits and administration Until recently, full-time state medical officers were uncommon, though they are now becoming general in the larger communities, their work is mainly propaganda, organisation, and the supply of aids to practitioners and voluntary agencies which dispense health benefits Full-time clinical assistants to medical officers are but little employed The special health benefits are given by doctors acting either on a part-time or piece-work basis for the local authorities

Practice of Allergy

By WARREN T VAUGHAN, M D, Richmond, Virginia London Henry Kimpton 1939 Pp 140 7*s* 6*d*

THIS small handbook of explanation and instruction should be welcomed by the practitioner whose good humour and patience are so often exhausted by that difficult, if interesting, problem, the intelligent allergic patient It is clear and didactic but not alarming, amusing but not waggish, and the detailed instructions, taken from the author's well known textbook, are meticulous but not fussy The illustrations admirably convey the author's aim of accurate instruction fixed by entertainment There is one serious omission the patient who is intelligent enough to benefit and not be frightened by this book could safely be taught the advantage and use of adrenaline More stress on this and other methods of relief and less on the value of skin tests and desensitisation would have levelled up an otherwise well balanced essay

Cancer Handbook of the Tumour Clinic

Edited by ERIC LILJENCRANTZ, M D, chief of the tumour clinic at Stanford University school of medicine London Humphrey Milford, Oxford University Press 1939 Pp 111 14*s*

THIS is a summary of a postgraduate refresher course at Stanford University on the diagnosis and treatment of cancer A great deal of information is compressed into little space with the inevitable result that complications and controversial problems are over-simplified This is particularly so in the first chapter which seems to aim at giving a reasonably accurate answer to the questions about cancer the medical practitioner is asked by intelligent patients. The second chapter deals with the principles of radiation therapy, and includes the mechanism of absorption, reaction and quality of radiation in a few pages The chapters on cancer in different regions are more useful The advice is as a rule good, and the illustrations teach the learner what is intended The section on cancer within the oral cavity is disappointing Few cancer therapists in this country would agree that neck dissection is seldom warranted for tongue cancer, or with the hopeful prognosis suggested for cancer of the pharynx The accounts of cancer of the breast and the gynæcological malignant conditions are on sound conventional lines There is a useful bibliography

Clinical Biochemistry

(2nd ed). By ABRAHAM CANTAROW, M D, associate professor of medicine, Jefferson Medical College, and MAX TRUMPER, Ph D, clinical chemist and toxicologist, formerly in charge of the laboratories of biochemistry of the Jefferson Medical College and Hospital London W B Saunders Co 1939 Pp 666 27*s* 6*d*

THIS textbook covers the whole field very adequately from the practical standpoint, and gives detailed accounts of the various clinical tests The purely theoretical discussions, however, could be improved—for example, the chapter on protein metabolism loses value because it does not give a full account of the normal metabolism of proteins, and the information given is scrappy and incomplete But the authors include a number of investigations which are not usually found in this type of book, such as Bennhold's test for amyloid disease

Illustrations of Surgical Treatment, Instruments and Appliances

By ERIC L FARQUHARSON, M D, F R C S E, tutor in clinical surgery, Edinburgh Royal Infirmary Edinburgh E and S Livingstone 1939 Pp 338 20*s*

THE title of this book is misleading Its first part, apart from a chapter on infusion and transfusion, describes and illustrates the treatment of fractures and of a few orthopædic conditions As far as it goes this is clearly written and well illustrated It betrays the admiration which the author says in his preface that he has for Bohler and his methods, but in many sections the dogmatic teaching which is of value in a tutorial class would gain from the broader outlook of clinical experience The second part of the book, occupying 111 pages, consists of a series of plates, with captions, of surgical instruments in common use, from hypodermic syringes to Paul's tubes. It is difficult to see what need this section of the book can meet

---

Quarterly Journal of Medicine

The October issue contains the following papers —

SIMMONDS'S DISEASE DUE TO POSTPARTUM NECROSIS OF THE ANTERIOR PITUITARY By H L Sheehan (Glasgow Royal Maternity Hospital) This is a full analysis of the pathological and clinical features of the condition, based mainly on published records of 32 proved cases Necrosis occurs after a delivery complicated by collapse, usually with hæmorrhage In the puerperium of the typical case lactation is absent, and there is superinvolution of the uterus Subsequently the patient is apathetic and dull loses hair, has a low basal metabolic rate and a hypochromic anæmia, but does not become thin After 10–30 years the clinical features of myxœdema may appear Substitution therapy is not satisfactory, but if a further pregnancy occurs the disease is cured presumably through hypertrophy of the living remnant of the anterior pituitary

EXPERIMENTAL LEUCOCYTOSIS IN MAN By N G Nordensen (Stockholm) Intramuscular injections of sodium nucleinate and pentose nucleotide (over 50 observations in all) produce a continuing peripheral granular leucocytosis and hasten the maturation of granular cells of the bone-marrow in normal subjects and in patients with mild infections—i e , in cases where the bone-marrow is substantially undamaged , no leucocytosis is produced in cases of severe infection and of pernicious anæmia in relapse, where the marrow is already damaged

ATYPICAL HÆMOLYTIC ANÆMIAS. By F. Graham Lescher and Gladstone R Osborn (Derbyshire Royal Infirmary) Report and discussion of a case of atypical (non-spherocytic) macrocytic jaundice apparently cured by splenectomy, and of a fatal case of the Marchiafava-Micheli syndrome In the latter, investigation of the mechanism of the hæmolysis showed the abnormality to lie in the red cells ; no hæmolysin could be demonstrated in the plasma

THE NATURE OF THE ARTERIOLAR HYPERTONICITY IN ACUTE GLOMERULONEPHRITIS By W Melville Arnott and G. Douglas Matthew (Edinburgh Royal Infirmary) The maximum heat elimination from one hand, when vasoconstrictor impulses to its vessels are inhibited by immersion of the other hand in hot water, is found to be greater in patients with acute glomerulonephritis and hypertension than in the same patients after recovery This points to the involvement of a nervous mechanism in acute nephritic hypertension.

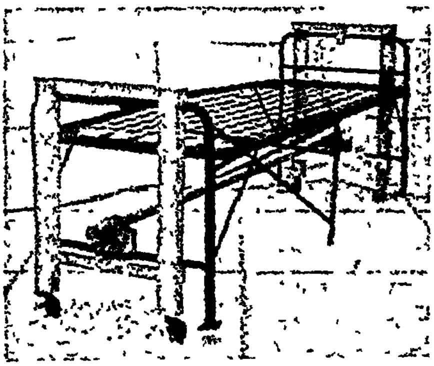
A STUDY OF SOME SERUM ELECTROLYTES IN HYPERTENSION By O. L V S de Wesselow and W A R. Thomson (St Thomas's Hospital) The serum potassium level tends to be low in essential and malignant hypertension, especially in the latter. - The serum sodium level is not infrequently low in malignant hypertension. Large additions of sodium to the diet of hypertensive patients produced small increases in blood-pressure, large additions of potassium produced small decreases Attempts at depletion of the body *sodium left the blood-pressure* unaltered.

NEW INVENTIONS

LIFTER FOR FOLDING BED

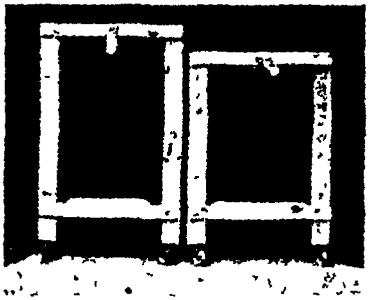
The standard army folding bed in use in emergency hospitals has proved troublesome, if not actually dangerous It has no wheels, and with a patient in it the bed cannot be made to slide because the feet *bite into the floor* ; while, if it is lifted by the ends, the central pair of legs buckles downwards under the weight of the patient To overcome these difficulties an easily constructed wooden bed-lifter has been designed, and has been in use at Botleys Park War Hospital for some weeks Details of construction are given here in case others have had similar difficulties with these beds

The frames are made of ordinary white deal, one for the foot of the bed and one for the head, with mitred joints fixed with two screws (see figures) ; 2 × 2-in. timber was used for the crosspieces, 3 × 2 in. for the uprights, and 3 × ¾ in for the piece which retains the lower rail of the frame under that of the bed when in use. The retaining button is best made of hard wood. The measurements given are for the foot of the bed ; the head, being 1 in. higher, necessitates a height of 25¾ in. instead of 24¾ in. between the rails of the lifter, and all other height measurements are increased accordingly.

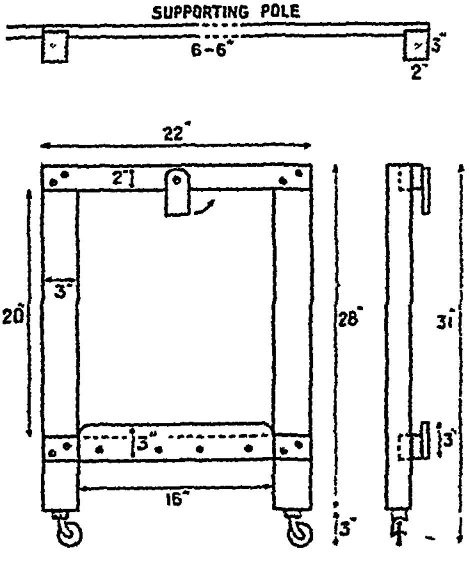


To prevent the collapse of the centre part of the bed when the frame is in use, it is necessary *to have a* strut running from the lower rails of the bed at each end and supporting the centre of the bed by the apex of the diagonal struts of the centre pair of legs. This strut is inserted first We have used a length of ash towel-railing supported by wooden blocks bolted on at each end, but a 6 ft 6 in. length of 3 × 2-in. deal would be cheaper and serve equally well

In fixing the lifters it is unnecessary to lift the bed by hand ; the wheeled end of the frame is slid in under the lower rung of the bed, and the upper end of the lifter is raised, thus elevating the bed ; the frame is secured in position over the upper bed rail with a wooden button Any type of castor may be used. So far we have used 3-in. diameter dinner-wagon wheels, costing 3*s.* 6*d.* per set of four, but they are on the light side. Since the wood costs but a few pence, the castors are the only considerable item.



The whole apparatus takes only a few seconds to fit ; hence it is unnecessary to have more than a set or two for each ward. They are of great service in cleaning the ward and in pushing the patients out on to a verandah, and would be indispensable in case of fire.



FRAME FOR FOOT OF BED

I wish to thank Dr. K Paddle, the medical superintendent, for permission to publish these details, and Mr. T. W. Purkiss for the photographs.

DUDLEY M. BAKER, M.B. Camb

THE LANCET

LONDON SATURDAY, DECEMBER 9, 1939

THE PHOSPHATASE TEST AND PASTEURISATION

WHILE the general introduction of pasteurisation is slow in coming, its opponents, driven by the logic of facts to abandon one objection after another, now mainly base their reasoning on the contention that while pasteurisation may be effective in theory it is often ineffective in practice, so that the security it gives is limited This poor argument has received its congé by the introduction and perfection of the phosphatase test which makes the efficient control of pasturisation both easy and practicable The test depends on measuring the phosphatase content of milk The phosphatases are enzymes which are present in reasonably large quantities in all samples of raw milk, are stable for the period which may elapse between collection and laboratory examination, and possess a resistance to heat which is slightly, but only slightly, greater than that of the tubercle bacillus and other pathogenic bacteria found in milk The quantitative test for their presence evolved by KAY and GRAHAM can therefore be used to assess the efficiency of "holder" pasteurisation The test has not yet received official or legal recognition, although the chief medical officer of the Ministry of Health remarked in his report for 1936 that "the obligation to detect in what way the pasteurisation plant or technique is at fault actually rests with the licensee, and if he cannot deliver milk which satisfies the requirements of the phosphatase test he should not continue to hold a licence"

Officially only the holder method of pasteurisation is recognised, with specified limits of temperature and holding time, but much experimental work has been done in this country, on the continent and in the United States on a different set of conditions mostly of the "high temperature, short time" variety On the whole the experimental work is favourable, so it is important to assess the value of the phosphatase test for this type of pasteurisation In a booklet[1] setting out the technique and utility of the test, Mr H D. KAY, D Sc, and his colleagues sum up the position by stating that for these variations experience is still limited, "but there can be no doubt that, possibly with minor modifications, it will provide as sensitive and searching a method of control here as it has already provided for "holder" pasteurisation In the United States there is more variety as to the times and temperatures authorised for pasteurisation, not all states having the same standards In general the requirements are less stringent than in Great Britain These differences raise difficulties in the use of the phosphatase test but they have been largely overcome by the use of various modifications of the test such as shortening the incubation time or varying the colour standard All those who have employed this test in the practical control of pasteurisation plant will concur as to its value The evidence is now ample to justify its use as an official test for pasteurised milk as defined by the Ministry of Health

EVIDENCE FROM THE LYSIN

ACUTE rheumatic fever is still an unsolved puzzle Hopes of the discovery of the causal agent in the shape of virus or pleuropneumonia-like organism have not been realised But the search goes on For forty years the streptococcus has been on and off the stage At first non-hæmolytic streptococci such as were recovered from rheumatic lesions and exudates during life, and more often post mortem, by POYNTON and PAINE, BEATTIE and YATES, SMALL, and BIRKHAUG, were incriminated, but in the past ten years the hæmolytic streptococcus has been the villain of the piece A close relationship between this organism and acute rheumatism has been proven on clinical, epidemiological, bacteriological and immunological evidence For example, streptococcal pharyngitis often precedes by 1–4 weeks both the initial attack of rheumatic fever and relapses of the disease, while in semi-isolated communities epidemics of sore throat are sometimes followed 2–3 weeks later by smaller outbreaks of acute rheumatism GREEN[1] and COLLIS[2] have recently recorded the isolation of hæmolytic streptococci from the heart-valves (but not the blood), pericardium, glands and spleen as well as from the tonsils of patients dead of the disease Agglutinins and precipitins to the hæmolytic streptococcus have been demonstrated in the blood of rheumatic fever patients, many of whom exhibit an allergic sensitivity to "endotoxin" products of the organism

Group A hæmolytic streptococci (*Streptococcus pyogenes*) may secrete at least three different aggressive substances—the erythrogenic toxin responsible for the rash of scarlet fever, fibrinolysin which specifically digests human fibrin, and hæmolysin with which may be linked a leucocidin Each of these substances is antigenic and each is independent of the others The hæmolysin, often termed streptolysin, has been the subject of much study Early work showed that it could best be produced in vitro by growing the streptococcus in a medium containing 10–20 per cent serum, and this serum streptolysin was apparently non antigenic since it failed to evoke any immunity in the rabbit Later, from a serum-free highly buffered medium, an antigenic streptolysin was obtained which was sensitive to oxygen but could be reactivated by reduction with sodium hyposulphite In 1934, [illegible] obtained a powerful hæmolysin, which was rapidly lethal to mice, by growing the streptococcus at 30° C. and extracting the lysin from the spun deposit of cocci with normal horse or rabbit serum. TODD has lately simplified matters by showing that serum-streptolysin and Weld's hæmotoxin each contain two hæmolysins: one the antigenic oxygen-sensitive lysin which he has called streptolysin O, and the other, a serum-soluble lysin and therefore called streptolysin S, which is very sensitive to heat and to acid Although streptolysin S is not by itself antigenic, living cultures of *Str pyogenes* produce in the rabbit both antistreptolysin O and S.

---

[1] The Phosphatase Test for Control of Efficiency of Pasteurisation By H D Kay, R Aschaffenburg and F K Neave Shinfield, Reading Imperial Bureau of Dairy Science Tech Communication No 1 1939 Pp 54 2s

[1] Green, C. A. *Ann rheum. Dis.* 1939, 1, [illegible]

[2] Collis, W R F, *Lancet*, Oct. 14, [illegible]

Now, we may ask, how do these streptolysins and their antibodies behave in acute rheumatic fever, and what light, if any, does their behaviour throw on the ætiology of the disease? In 1932, TODD showed that after various kinds of streptococcal infection the level of antistreptolysin O in the patient's serum rose from 3–100 units to titres ranging from 140 to 1700 units. Similarly, during and after an acute attack of rheumatic fever, a high level of antistreptolysin was found whether or not the attack was preceded by a demonstrable streptococcal pharyngitis. Further—and these observations have been confirmed and extended by COBURN and PAULI[3] and others—the antistreptolysin titre usually rose to a much higher level when streptococcal sore throat was followed by a rheumatic attack or relapse than it did after an uncomplicated pharyngitis. STUART-HARRIS has recorded somewhat similar results for the development of resistance to streptococcal fibrinolysin in the blood of patients with streptococcal infection complicated and uncomplicated by rheumatic fever.

The data so far have been concerned chiefly with the behaviour of antibody to streptolysin O. In our present issue Dr. TODD and Dr. COBURN have, as on former occasions, pooled their resources, and having estimated the titres of both antistreptolysin O and S under varying conditions of the acute rheumatic infection, have submitted their results to statistical analysis by Mr. BRADFORD HILL, D Sc. The findings relating to antistreptolysin O are in accord with earlier experience—a significantly greater increase in titre occurs among children developing a rheumatic recrudescence after a streptococcal pharyngitis than in similarly affected children, whether rheumatic or not, whose infection is uncomplicated by a rheumatic attack Of the latter two groups the rheumatic children show rather higher levels than the non-rheumatic In contrast, the streptolysin S antibody, which is significantly increased after streptococcal infection and more particularly in rheumatic children, tends to disappear in the presence of severe rheumatic infection and at the height of a rheumatic attack. The authors of this paper do not attempt any interpretation of these apparently contradictory phenomena. That rheumatic children who contract a streptococcal infection should show higher levels of streptococcal antibody than similarly affected non-rheumatic children is understandable on the assumption that the tissues of the rheumatic child have been previously sensitised to the streptococcus; and the intense response in the formation of streptolysin O antibody which the child with a rheumatic recrudescence often exhibits may be due to a greater or more continuous production of the antigenic stimulus, or to tissues which are in a more reactive state. Either of these hypothetical happenings may be an essential factor in the production of the rheumatic syndrome. But how about antistreptolysin S, the production of which seems to be damped down during the active phases of a rheumatic infection? Is the antibody being swamped by excess of antigen, or is its disappearance due to an allergic reaction? What is the complement content of the patient's serum under such conditions? And does the rising titre during recovery mean that this antibody helps the patient to overcome the rheumatic infection?

It is idle to speculate but we do not doubt that the search for the answer to the riddle of rheumatic fever will still go on. A word of warning may be added The ubiquity of streptococcal sore throat with or without scarlatina and the comparative rarity of acute rheumatic fever indicate that a factor or factors—whether genetic, deficiency, allergic or virus—other than the streptococcus is concerned in the ætiology of the disease, so that we must be careful not to read too much into observations of the kind which TODD and his colleagues have so carefully recorded.

A MECHANICAL CIRCULATION

CARDIAC surgery has already several achievements to its credit, notably the repair of wounds, the relief of Pick's disease, and cardiolysis for mediastinopericarditis. Furthermore, success has attended operative decompression in cases of gross cardiac hypertrophy and aortic aneurysm, and more recently methods of establishing a collateral blood-supply to the ischæmic heart have been demonstrated in animals and applied to sufferers from angina pectoris. The complete failure of intracardiac surgery and the discouraging mortality associated with the Trendelenburg operation of pulmonary embolectomy are therefore all the more disappointing. For the repair of intracardiac defects, whether congenital or acquired, a bloodless field is essential, but this can be obtained only by methods such as caval compression which entail cessation of the heart's action. The exact period of ischæmia tolerated by the various tissues of the body is not yet known, but it is generally agreed that permanent neurological damage is inevitable if the period exceeds four minutes. The fundamental problem now emerges of how to keep the tissues and particularly the brain alive while cardiac and respiratory functions are interrupted for surgical purposes.

Two recent papers indicate the lines along which this problem may come to be solved. Using a simple technique, O'SHAUGHNESSY[1] has succeeded in the cat and dog in arresting the heart for ten minutes by caval compression while perfusing the brain with oxygenated hæmoglobin-Ringer's solution The animals made an uneventful recovery and behaved subsequently in a perfectly normal manner GIBBON[2] reports thirteen experiments in which life was maintained in the cat by an extracorporeal circulation while the flow of blood through the heart and lungs was completely stopped by clamping the pulmonary artery His apparatus was elaborate, but its essential features were a pump to withdraw blood from the superior vena cava through a cannula in the right jugular vein, a revolving cylinder on the sides of which the blood was oxygenated, and another pump to reinject the blood into the right carotic artery in a central direction The pumps were of the constant-injection roller type, and ingenious devices were employed to stop the first pump whenever the wall of the vena cava should be drawn up against the opening of the cannula, and to control the output of the second pump The pumps were capable of delivering about 500 c cm a minute, but the oxygenator used did not introduce enough oxygen into venous blood to maintain life in an animal larger than the cat Six weeks before the experiment a preliminary operation was performed to suture the pericardium directly beneath the skin so that later the pulmonary artery could be rapidly exposed without opening the pleural cavity This obviated the use of artificial respiration and allowed observation of natural respiratory movements while the pulmonary artery was occluded During the occlusion ether vapour was passed through the oxygenator to maintain anæsthesia Four of the thirteen animals lived for one to nine months after periods of occlusion of from twelve to twenty minutes They remained normal in every respect and exhibited no neurological changes

---

[3] Coburn A F, and Pauli R H, *J exp Med* 1935, 62, 129, 137 159

[1] O'Shaughnessy, L., *Lancet*, Nov 4, 1939, 996.

GIBBON expresses the hope that the method may eventually be perfected to such an extent that it may be safely employed on human beings The difficulties in the way of its clinical application do not appear to be insurmountable Intravascular clotting, whether in the cannulated vessels or at the site of operation, could be largely prevented by general heparinisation of the patient The main difficulty seems likely to be the construction of an oxygenator large enough to satisfy even basal human requirements GIBBON suggests that if the apparatus were not at first able to carry an entire circulation it might be valuable in taking over temporarily a small part of the cardiorespiratory functions in an acutely failing heart, where the possibility existed that the heart and lungs might again be able to resume their full burden He also notes its possibilities in lowering the mortality from pulmonary embolectomy and in making a surgical approach to the mitral valve practicable The method may in fact open the door ultimately to the unknown possibilities of intracardiac surgery

---

[2] Gibbon, J H, Jun, *Surg Gynec Obstet* November, 1939 p 602

ANNOTATIONS

STORED BLOOD

THE establishment of blood banks has focused attention on the value of stored blood for transfusion, and a good deal of work is now being done on the changes that take place during storage Belk, Henry and Rosenstein[1] find that red cell fragility increases, while the number of granulocytes and the coagulation power decrease They observed only 7 minor reactions after 400 transfusions with blood whose age averaged ten days, but they maintain, on no very clear evidence, that the limit of fourteen days before stored blood is discarded is much too long, and advise the use of freshly drawn blood in the treatment of agranulocytosis and hæmorrhagic diseases Gwynn and Alsever,[2] who use placental blood for their transfusions, show that hæmolysis only becomes marked when the sugar in stored blood falls to a low level, and following the examples of Belenkiy[3] and of Harington and Miles[4] they add glucose to their citrate anticoagulant They say that large amounts are needed and that a final content of about 1 per cent in the blood citrate mixture greatly prolongs the life of stored erythrocytes They observed no ill effects with blood a month or even nearly two months old The findings of Dr Maizels and Dr Whittaker in this issue appear to confirm the value of glucose in cell preservation, but they employ a new technique in which polysaccharide is added to the diluent instead of monosaccharide Their idea is that a substance of high molecular weight like dextrin will cause less osmotic disturbance than glucose, and will by its slow decomposition act as a reservoir from which glucose may be derived over a long period In this way they find it possible to maintain stored blood in excellent condition for two months They also show that 3 8 per cent sodium citrate and the diluent recommended for use by the Medical Research Council, which are assumed to be isotonic with blood, are in fact very hypertonic In face of the growing record of successes, Macdonald and Stephens[5] hold the view that transfusion with stored blood is likely to be valueless They base this view on three groups of observations (1) Increase of fragility on storage, which according to Maizels and Whittaker, is no real evidence of cell damage at all, but merely a physical effect of seepage of salts into the stored cell (2) Decrease in the erythrocyte count on storage, but in stored blood quite a thick film of erythrocytes may adhere to the sides of the containing vessel and this may account for the fall (3) The finding of deformed cells in dried films treated with Leishman's stain, but cell appearances in dried films are often artifactual, and may result from simple physical changes in shape on storage In wet preparations, apart from a few "ghosts" and some loss of biconcavity, the erythrocytes look in good condition The evidence put forward by Macdonald and Stephen does not, in fact, seem strong enough to condemn a well-established procedure There is now a large body of [illegible] evidence that blood stored for a month or more can be used successfully, even as a continuous drip transfusion, and that reactions are few and bear no relation to the length of storage (Hamilton-Paterson[6]). Clearly, if cell hæmoglobin is neither excreted in the urine nor converted into urobilin, it must remain in the blood and be available for oxygen carriage. It appears that stored blood is of great value in severe acute hæmorrhage, useful in the anæmia of chronic hæmorrhage, but probably contra-indicated in agranulocytosis and the blood diseases; and it must be remembered that, while in peace-time the blood bank is a convenience, in war-time it is a necessity.

---

[1] Belk, W P, Henry N W and Rosenstein M T *Amer J med Sci* November 1939 p 631
[2] Gwynn C A and Alsever J B *Ibid* p 634
[3] Belenkiy D N *Sovet Khir* 1936 3 394
[4] Harington C R, and Miles A A, *Lancet* 1939 1, 1349
[5] Macdonald A, and Stephen G M, *Ibid* Dec 2, 1939 p 1169

PAREDRINE IN SPINAL ANÆSTHESIA

MOST of those who make frequent use of spinal analgesia are troubled sooner or later by the profound drop in blood-pressure which is sometimes associated with it. The physiological mechanism by which this fall is brought about has been the subject of much controversy but nearly all are agreed on its occasionally serious effects. The drugs used to counteract the fall, chiefly epinephrine and ephedrine, are not always successful. Now a new agent has been introduced in the United States, and so far as can be judged from the small number of patients on whom it has been used it promises to be effective. It is called Paredrine and is *p*-hydroxy-*a*-methyl-phenyl-ethylamine-hydrobromide. In a series reported by Altschule and Gilman[7] paredrine was given to 50 patients in whom there was rapid and considerable fall in blood-pressure during spinal anæsthesia. They gave either 10 to 20 mg. intramuscularly or 5 to 10 mg. intravenously or both. In every instance the administration was followed by the return of blood-pressure to a satisfactory level. The rise usually began within five minutes of the introduction of the drug and lasted from 20 to 50 minutes. No untoward symptoms were observed. Paredrine causes none of the cortical action which accompanies the use of benzedrine and its effect is more lasting than that of epinephrine. It appears to act almost entirely on the peripheral vessels, without increasing the output of the heart.

PERSPECTIVES IN EVOLUTION

IN his address to the section of zoology of the British Association, now published,[8] Prof. James Ritchie begins by glancing at the difference between pure and economic science. Economic science seems to mean knowledge that directly advances man's comfort and happiness, and out of which someone, though not necessarily the discoverer, may make money; while pure science is knowledge which up to now has not shown the same adaptability, though, of course, it may do so at any time. Then he passes to the secret of life, and one gathers that at heart he is a mechanist—which seems the up-to-date term for materialist—rather than a vitalist, for he points out how the kernel of animation, vitalism or life has retreated further and further into its shell before the attacks of the chemists and physicists. But he is very fair and recognises that no one as yet has made artificial protoplasm react by motion to any stimulus; and that, he thinks, is the prerogative of life. Viewing the quality of life in perspective, he gives some startling facts. Sea water, he says, contains only 0·12 part of calcium carbonate per thousand, yet some 48 million square miles of the ocean floor are covered with a deep deposit of calcareous ooze, containing calcium carbonate up to 90 per cent., extracted by marine animalcules from the sea. Then again the lower atmosphere contains only about 3 parts in ten thousand of carbon dioxide, yet all our peat, coal, oil shale and natural petroleum have been collected from this diffused store by plants. A single tree, five tons in weight, has absorbed the carbon dioxide from 16,125,000 cubic yards of air for its growth. These figures are quoted to emphasise the great law that. "While, left to themselves, the units of matter in a gas or solution move towards their greatest dispersal, when they are in contact with living organisms this dispersal is replaced by assortment and aggregation." Not even a bacterium satisfies Professor Ritchie as the earliest form of life, he is forced to postulate some precellular, diffuse material whose one outstanding character is the power of using for its own aggrandisement some form of energy external to it. And thus the vitalists still hold their fort. His account of the way in which the estimated age of the earth has increased of late years is amusing. In Bagster's "Polyglot Bible," working on the genealogies recorded in Genesis, the date of the creation was fixed at B.C. 4004. Buffon, in the eighteenth century, said that the age of the earth was 75,000 years. Lord Kelvin, in the nineteenth, suggested 20 to 40 million years. Sir Archibald Geikie, in 1899, required not much less than 100 million years since the earliest forms of life appeared and perhaps 400 million since the world began, while the present view is that the birth of the earth, and possibly that of the solar system, took place 2000 million years ago. He next discusses the slowness of the process of evolution. The edible cockle has retained its specific characters for 2 million years, while the transition of the four-toed horse (Eohippus) to our own one-toed animal took 57 million years. On the other hand, there seems little doubt that certain species of mice and voles have been evolved since the last glacial period, a trifling 22,000 years ago. Man of our own species has probably less than a million years behind him though he did not take his place as the lord of creation until Neolithic times, which only reached Western Europe some 8000 years B.C. With regard to the immediate future—immediate from a geological point of view—the higher intellectual, spiritual and moral condition of man seems likely to continue its advance, and in these days the probability is welcome. but Professor Ritchie wisely points out that 180 million years ago the great dinosaurs were the lords of creation, and where are they now? Looking forward to the next 100 million years, he says: "It is presumptuous to suppose that man, the latest new-comer, is the last word. It is worth while to look on him in his biological setting as but one, though so far the greatest, of the manifestations of life upon the earth."

MASS TESTING OF COLOUR VISION

THE investigation of colour vision takes a long time and needs expensive apparatus and expert examiners, so that it cannot easily be included in many routine medical examinations of which it would be a useful part. Berens and Stein[1] have now devised an ingenious but simple method for testing the colour vision of a large number of people at one session. The standard Ishihara and Stillings charts are photographed on 35 mm. Kodachrome film, from which copies can readily be made. From this coloured lantern slides 2 in. square are made to fit a miniature projector and the pictures are thrown on a glass bead screen The test is carried out in a semi-darkened room and each examinee is given a card on which are key numbers corresponding with the order in which the slides are projected Opposite each number he records the figure which he identifies on the pseudo-isochromatic chart projected on the screen The results have been compared with those obtained with the standard test charts and found to be identical This method would be useful in examining candidates for appointments in public services, industrial employees, motorists and school-children, and it would detect disturbances of colour vision due to toxic amblyopia and optic neuritis Tests for illiterate malingerers, the Worth four-dot test and the threshold tests after the Young method, the Edridge Green and other lantern tests, and the kindergarten chart could also be introduced Berens and Stein further suggest that coloured slides showing scenes could be used for educating colour-blind people to differentiate colours

---

[6] Hamilton Paterson, J. L., *Brit. med. J.* Nov. 4, 1939, p. 908.

[7] Altschule, M. D., and Gilman, S., *New Eng. J. Med.* Oct. 19, 1939, p. 600.

[8] First Quarterly Report of the British Association's Dundee Meeting, September 1939. Published by the Association at Burlington House, W. 1. Pp. 154. 5s.

[1] Berens, C., and Stein, I., *J. Amer. med. Ass.* 1939, 113, 1563.

AVERTIN AND THE LIVER

Ever since it was first introduced Avertin has been feared by some because of its possible, and as they thought likely, deleterious influence on the liver Clinical experience has now been sufficient to show that in practice these fears are mostly groundless Avertin has been used on many patients suffering from various hepatic defects, and so far there have been few instances in which subsequent ill effects could be attributed to the avertin Avertin has often been used, for example, on patients prior to operations for gall-stones, without any harm resulting When there is already serious damage to the liver no doubt avertin should be avoided, and it is true that experimentally hepatic necrosis can be induced by avertin, but only by giving it in doses or for periods which are quite beyond those of clinical practice In an article in the *Guy's Hospital Gazette*[1] Sir Arthur Hurst recommends that neither avertin nor any other anæsthetic that is even mildly toxic to the liver should be given to jaundiced patients, those who have been jaundiced during the preceding year or those who give a positive indirect van den Bergh reaction with or without obvious jaundice If there is doubt as to the condition of the liver the lævulose test should be performed before the use of avertin is decided on He also regards avertin as dangerous for alcoholic subjects It has been used on a great number of these people without ill-effects, though they are, of course, resistant to its action as to that of all anæsthetics.

GROWTH OF OPHTHALMOLOGY

The rise of ophthalmology as a special branch of medicine is at first sight surprisingly modern, for it is essentially a creation of the nineteenth century The reason for this comparatively late growth is that the essential foundations—the anatomy and physiology of the organs of vision—were lacking until the latter part of the eighteenth century It is true that a school of ophthalmology was established at Vienna in 1773, but its first professor was a noble charlatan in favour with the court. It was not till a true scientist in the person of Georg Beer succeeded to the school that real knowledge began to spread over the civilised world, and the specialty could be said really to exist In the twentieth of the series of primers of medical history now appearing under the general editorship of Dr Krumbhaar, Dr Burton Chance[2] says "The attitude of the profession towards the subject, in England at least, was one of distrust, if not contempt. At the opening of the nineteenth century the surgery of the eye was in the hands of travelling quacks who couched cataracts in the market-place" The two men who did most to change this attitude were von Graefe in Germany and Bowman in England, both endowed with highly scientific minds and both brilliant practitioners of the craft From the middle of the nineteenth century the specialty was firmly established and was making immense strides in knowledge and skill Yet the earlier history, especially of the eighteenth century, is studded with the great names of scientific men who devoted time and research to the problems of vision, notably Isaac Newton and Scarpa, though the practice of ocular therapeutics was chiefly in the hands of charlatans, of whom the most notorious and the most successful was Chevalier Taylor In spite of the great advance made in the last hundred years there are, as Dr Chance shows, still wide fields open to the inquiring mind Sympathetic ophthalmia, for example, though better understood than formerly, is still something of a mystery, and it can hardly be said that the last word has yet been spoken about colour vision Nevertheless, Dr Chance's book is a stimulating record of past achievement.

SUCROSURIA

It is some thirty years since Smolenski[1] first drew attention to a rare, but interesting, disturbance of carbohydrate metabolism, in which sucrose is found in the urine In health sucrosuria only occurs after the ingestion of very large amounts of cane sugar—e g, 150–250 g—and even then no more than 1 per cent of the ingested sucrose is found in the urine If cane sugar is given intravenously, however, over 90 per cent can be recovered from the urine This, of course, is due to the fact that sucrose can only be hydrolysed by sucrase, which is only found in the duodenum, or possibly also in the pancreas According to Elmer, Krasowska and Ptaszek[2], only four cases, including one they themselves report, of pathological sucrosuria have been recorded since Smolenski's original paper They describe two types of sucrosuria—exogenous, where it follows the ingestion of normal amounts of sucrose, and endogenous, where it is entirely independent of the intake of sucrose Their case falls into the first group A woman of 25, who complained of general weakness, thirst and loss of weight, was found to have hypoglycæmia, and her urine, which contained neither sugar nor acetone, had a specific gravity of 1070 and rotated the plane of polarised light to the right As a result of these last two findings further examinations were carried out and pure sucrose was isolated from the urine When she was given 100 g of cane sugar a marked sucrosæmia and sucrosuria occurred, the blood sucrose rising to 45 mg per cent in ninety minutes, and this was accompanied by a slight rise in the blood glucose, suggesting that some of the sucrose had been hydrolysed to glucose and fructose A glucose-tolerance test gave a normal curve, and neither the ingestion of glucose nor of fructose caused any increase in the blood or urinary sucrose It was noted that the hypoglycæmia could only be relieved by the administration of glucose As the authors point out, this type of sucrosuria must be due either to an increased permeability of the duodenum to sucrose or to a deficiency of sucrase, and in their own case they tend to the opinion that it was the latter factor which was predominant, thus explaining their inability to relieve the hypoglycæmia with large doses of sucrose Of the endogenous form of sucrosuria, Elmer and his colleagues have only found two reported cases, in both of which there were large amounts of sucrose in the urine in spite of the complete withholding of this sugar from the diet. In one of these, sucrose-tolerance tests were carried out which showed that the ingestion of sucrose had no effect on the sucrosuria. In both there was evidence of pancreatic disease They put forward two possible explanations of this type of sucrosuria, one being that the sucrose is a normal intermediate product of carbohydrate metabolism, and that these patients cannot metabolise it beyond this stage, so that it is eliminated as such in the urine Their alternative and more probable thesis is that the sucrose is actually formed in the body, possibly from the phosphoric ester of glucose and fructose, known as the Harden-Young ester, which is normally present in the body. The fact that so few cases of this metabolic abnormality have been reported does not necessarily indicate a corresponding rarity of incidence, as sucrosuria per se does not produce any symptoms It is possible that, if more cases of pancreatic disturbance were investigated from this point of view more examples would be found, thus providing material for a thorough search for the cause of this interesting if harmless metabolic disturbance.

---

[1] Nov 14 1939 p 305

[2] Ophthalmology By Burton Chance, M D New York Paul B Hoeber, medical book department of Harper and Brothers 1939 Pp 240 $2

[1] *Hoppe Seyl Z* 1909, 60 127

[2] Elmer A W, Krasowska M and Ptaszek L *Acta med Scand* 1939, 101, 596

CREATINE AND CREATININE

SINCE Chevreul first isolated creatine from meat extract in 1836, the true function of this relatively simple compound and of its internal anhydride creatinine has baffled each generation of physiologists in turn. There have been three distinct periods in the investigations The first dealt with the chemistry of the two substances and their occurrence in animal organs and excretions The second opened in 1905 with Folin's introduction of his now classical colorimetric method for determining the two compounds This led to the compilation of an immense amount of data, particularly about the effect of age, sex and exercise on the excretion of the two bodies. The third period was introduced by the Eggletons and by Fiske and Subbarow's discovery that creatine was normally present in muscle combined with phosphoric acid, and that this compound played an integral part in the chemistry of muscular contraction. It is rather unsatisfactory that after so much research our knowledge should still be so meagre, and two recent contributions only serve to emphasise the uncertainty which still surrounds the real physiology of creatine. Hobson[1] and Wang[2] both report that creatine is often to be found in adult male urine—Hobson indeed found quite large amounts. If this is true, how was it that so many other investigators using similar methods failed to find it? Hobson's subjects were trained athletes and eating large quantities of sugar. Hobson considers that both physical exertion and a high carbohydrate diet contributed to his results, but makes only vague suggestions as to the way in which they could have done so Wang has found that one of the actions of thyroxin is to produce creatinuria, probably by reducing the amount of creatine phosphate held by the muscles The creatinuria of thyrotoxicosis diminishes when iodine is administered He has also found creatinuria in cases of phlebitis and thrombosis of the deep veins, as after an appendicular abscess, and also in the paralytic stages of poliomyelitis In the latter disease the creatinuria diminishes as the muscles recover their function

The central problem of creatine and creatinine metabolism is the relation of one compound to the other in the animal body. Many attempts to find the relationship have been made, but so far without any certain result. If this relationship could be established it is certain that many of the facts which are now known could be explained. It looks as though this discovery would initiate the fourth and possibly the most fruitful period of research into the creatine-creatinine bodies Let us hope that it will soon be made.

ALFRED VOGT HONOURED

IT was a happy thought of the Festschrift committee of the Swiss Ophthalmological Society to use the Swiss medical weekly as their medium in presenting Professor Vogt with the customary bouquet of ophthalmic efflorescences on his sixtieth birthday. For one thing it has obviated the appearance of one of those solid masses of specialist literature so likely to remain unread by all but the producers. By scattering the papers of the symposium among a wider circle of interest, and by including papers linking ophthalmology with other branches of medicine, the editors have produced a couple of eminently readable numbers. The subjects range over accounts of ophthalmic votive offerings, visual hallucinations, industrial eye diseases, veterinary ophthalmology, cerebral localisation and rare diseases as well as of the more familiar glaucoma and retinal detachment. The postmarks include Chicago, Lwow, Cairo, Eastbourne, Budapest, Vienna and Catania, and it is refreshing to find no reflection of the European tension We may hope that Switzerland will maintain her independent scientific thought as in the last war when she produced the two greatest advances in ophthalmology since the time of Helmholtz: the slit-lamp and the operative treatment of detached retina We have to thank Vogt for the admirable Slit-lamp Atlas, which first appeared in 1921.

HEALTH SERVICES OF NEW YORK CITY

THE annual report for 1938 of Dr. John L. Rice, commissioner of health of New York City, is presented as an attractive illustrated guide to the city's health services under the title, "Health for New York City's Millions." During the past few years New York has made immense strides in its public health organisation and has achieved a uniform system of administration for its seven and a half million people, centred in a Board of Health of which the commissioner is chairman Greater New York is now divided into 38 districts, corresponding in their powers and duties more to our outer ring boroughs than to the metropolitan boroughs, to which the dispensation of services is delegated by the health board. The board itself differs from the health committee of the London County Council in having complete central control of all health and sanitary services and in covering the whole metropolitan unit. The services provided are in the main similar to those available in this country, but the American system relies less on full-time health officers than does ours and has more intimate contact with private practitioners, in America always called physicians. In Britain the medical functions of public health arose piecemeal to give to the people medical benefits which private medical practice did not supply, or supplied indifferently or irregularly; but in the American cities public health is framed to dispense the benefits through the private physicians wherever possible, by supplying them with material and specialised help and coordinating their services. Consequently there is little friction between the health department and the body of practising physicians. The results obtained by the public health service of New York have been remarkably good, especially during the past two years, so that the report for 1938 lends itself to propaganda of the best kind, this, no doubt, is the reason why it is presented to the public in such an attractive form.

---

[1] Hobson W *Biochem. J* 1938, 33, 1425
[2] Wang, F, *Acta med Scand* 1939, Suppl. 105

WHY DOES LABOUR START?

In spite of our increasing knowledge of the physiology of pregnancy the causation of the onset of labour remains in doubt, though data are gradually accumulating. That mechanical and nervous factors play only a subsidiary part has long been observed, as is shown by the uncertainty of inducing premature labour by mechanical methods. Recent work on the endocrine changes in pregnancy has shown the importance of œstrogenic substances in sensitising the uterus near term. Œstrin itself has no specific contractile effect on the uterine muscle, a latent period occurring before the sensitivity is increased if œstrin is given experimentally. Theoretically this might be due to alteration in the hormone to a utilisable form, by it affecting other substances in the body so that they in turn may produce action, or by the permeability of the myometrial cells being altered. Danforth and Ivy[1] are impressed by the second possibility and review the effect of mineral ions on uterine contraction. Free calcium ions increase motility whereas potassium and magnesium decrease it. Probably the action in the body is dependent on a balance of several ions, and these workers draw attention to the relation between the sex hormones and the mineral metabolism and acid base balance of the body. While returning to the view that the onset of labour is determined by more than one factor, Danforth and Ivy regard as perhaps the essential mechanism in setting the stage for labour (as Blair-Bell calls it) the alteration in uterine irritability produced by the change in its ionic state, this latter change being the result of endocrine activity. Before this view is confirmed we must know more about the free ionic calcium content of the blood and the effects of the sex hormones on the mineral balance and alkali reserve. It does, however, correlate many of the known facts.

DIAGNOSIS OF CARDIAC ANEURYSMS

Cardiac aneurysms were recognised as a pathological curiosity in the 18th century, but until the appearance of Sternberg's monograph[2] in 1914, only three cases had been diagnosed clinically. It was not until after the last war that a satisfactory radiological method for recognising such cases during life was introduced, the first one to be diagnosed by this means being reported by Ségary and Alibert[3] in 1922. The literature that had since appeared was reviewed last year by Parkinson, Bedford and Thomson,[4] and from this it seemed that, while in a minority of cases a cardiac aneurysm may be suspected on clinical grounds, certainty can only be attained by careful radiological examination, and even then small aneurysms on the posterior wall of the left ventricle may escape notice.

Two recent papers, one from Sweden and one from America, have brought out the value of electrocardiography in the diagnosis of cardiac aneurysm. Nordenfelt[5] suggests that with large chronic aneurysms of the anterior wall of the left ventricle a typical electrocardiogram is obtained which shows a relatively low R_1, an absent R_4, a deep S_2, S_3 and S_4, a raised S-T segment in all leads, a negative T_1 and a positive T_2, T_3 and T_4. As he only includes in his series cases with large aneurysms and the heart as little changed otherwise as possible, he has been able to collect only 2 cases of his own and 8 from the literature. Of 1300 consecutive electrocardiograms taken at his hospital, only 2 showed similar changes, and both of these were from patients who had recently had a coronary occlusion. "The thin walls of the aneurysm," he says, "render it possible to conduct away the electromotive forces on the inside of the heart. It seems not impossible that their stronger effect on one electrode helps to determine the shape of the electrocardiogram." The American workers,[6] on the other hand, divide cases of cardiac aneurysm into three roughly equal electrocardiographic groups as showing (1) a downward directed major deflection in lead 1 with inversion of T and an upright P wave, the ventricular complex in lead 3 being upright, (2) downward directed ventricular complexes in leads 2 and 3 with an upright major deflection in lead 1 that may or may not be of low amplitude, or (3) left bundle branch block or some other tracing merely indicative of coronary artery disease. They could find no correlation between the site of the aneurysm and the type of electrocardiogram.

One would not expect there to be any electrocardiogram diagnostic of cardiac aneurysm, for while such aneurysms usually occupy the same site—the anterior wall of the left ventricle including the apex—they vary much in size, in the nature of their contents, whether circulating blood or clot, and in the amount of associated myocardial disease. It is probably wisest to adopt the suggestion of Parkinson and his colleagues and divide cardiac aneurysms into two groups, anterior and posterior, according to the coronary branch occluded. Correlation will then be obtained with the two main types of electrocardiogram obtained in coronary occlusion, the T_1 and the T_3 type, and the association of one of these with a history of coronary thrombosis, enlargement of the heart to the left, a normal or low blood-pressure, and distant heart sounds will be strongly suggestive of the presence of an aneurysm in the anterior or posterior wall of the left ventricle. The final diagnosis, however, will depend on careful radiological examination.

Dr R A Young will deliver the Harveian oration to the Royal College of Physicians of London on Friday, Dec 15, at 2.30 P.M. He will speak on the pulmonary circulation—before and after Harvey.

Prof Charles Vaillant, a pioneer of radiography, died in Paris on Dec 4, at the age of 77. He retired eighteen years ago because of progressive X-ray dermatitis contracted in the early days.

The Hanbury Medal.—The formal presentation of the Hanbury gold medal to Mr T E Wallis reader in pharmacognosy in the University of London was made by Mr Walter Deacon, president of the Pharmaceutical Society, on Nov 20 at the University of Cardiff, where the Society's college of pharmacy is being accommodated for the duration of the war. The nature and extent of Mr Wallis's contributions to the science of pharmacognosy were referred to in The Lancet of July 8 (p 87).

---

[1] Danforth D N, and Ivy A C *Surg Gynec Obstet* October, 1939 p 351

[2] Sternberg, M Das chronische partielle Herzaneurysma Leipzig 1914

[3] Ségary A, and Alibert, T *Bull Soc Méd Hôp Paris*, 1922, 46 172

[4] Parkinson J, Bedford D E, and Thomson W A R *Quart J Med* 1938 7 455

[5] Nordenfelt O, *Acta med scand* 1939 102 101

[6] Eliaser M Jun, and Konigsberg J *Arch intern Med* 1939 44, 193

SPECIAL ARTICLES

ELECTRIC-CONVULSION THERAPY IN SCHIZOPHRENIA

BY LOTHAR KALINOWSKY, M D Berlin, M.D. Rome

CONSIDERABLE prominence has been given to the disadvantages and complications of shock therapy, particularly convulsion-therapy, in the treatment of schizophrenia The induction of convulsions by electric shocks appears to solve some of the difficulties, including the severe states of anxiety and terror between the injection and the onset of the convulsion and the consequent development of extreme apprehension on the part of the patients during the course of treatment.

Cerletti, of Rome, had for many years studied problems in epilepsy by provoking epileptic fits in animals, especially dogs He passed the ordinary lighting current (A.C) through the animals, applying one electrode in the mouth and the other in the rectum When convulsion therapy with Cardiazol was introduced, he suggested using the electric current for the same purpose Bini, of Cerletti's clinic, constructed an apparatus which allowed a certain number of volts to pass for an agreed period. After numerous experiments on animals Cerletti and Bini (1938) began to apply the method to man. Several thousand fits have been produced on some hundred patients, partly treated in the Rome clinic and partly reported from other institutions, without any accident whatever. After a thorough study of the literature concerning electric accidents I am convinced that by this method accidents can be absolutely excluded Organic damage due to electric current is very rare in the brain and is obtained only with much higher voltages. Other accidents, which can happen even with comparatively low voltages, are only to be expected if the current passes through the heart

TECHNIQUE

The technique of electric-convulsion therapy with Bini's apparatus guarantees that the current passes through the head only. The electrodes, each about 4 in. square, are covered with a cloth soaked in conducting fluid (about a 20 per cent. solution of salt water) and applied to the patient's temples It is not absolutely necessary to shave the head, but the area of contact is moistened with the conducting paste used in electrocardiology.

The temples were chosen as the best place as the result not only of observations made during experiments on animals but of various other considerations; observations in which I assisted at Foerster's clinic in Breslau suggested that the frontal adversive field (area 6a B of Vogt-Brodmann's classification) was the focus from which the fit started in the greatest number of cases of "genuine" epilepsy. This seems to be the area with the lowest convulsion threshold. Application of the electrodes on both sides of the forehead can therefore be expected to produce a fit with the lowest voltage.

At the same clinic experimental stimulation of certain cortical areas during operations suggested that length of time of application of the electrodes was not important, and that the fit was provoked at the moment of closing the circuit We found in shock treatment that, if a certain voltage applied for $\frac{1}{10}$ sec. did not produce an attack, it was useless to make a second attempt with the same voltage for a longer time. So we limited the later applications to $\frac{1}{10}$ sec.

The hood with the electrodes is put on the patient, and the resistance of his head is measured with a trial circuit of 1 milliamp The potentiometer tension regulator has a graduated revolving drum from which the resistance in ohms can be read The value of the resistance, usually 400–1000 volts, determines which voltage is to be applied. The switch is changed from the trial circuit to the shock circuit, the voltmeter brought to the desired voltage, the automatic stopwatch set to $\frac{1}{10}$ sec, and the shock circuit closed. A milliammeter shows the amount of current passing during the shock. The first attempt is made with a minimal voltage, generally 60–70 volts, hence often unconsciousness, not a fit, is produced (petit mal). In this event, when the patient has regained consciousness, the current is applied again immediately The resistance must be measured again; at the second attempt it is constantly lower

Exact measurements are not absolutely essential. We never get the usual constant relation between ohm, volt, and milliamp. I am not competent to enter into the electric medical problems, which Bini proposes shortly to discuss. Apparatus under construction in England* is fitted with a ballistic milliamp-sec. meter which, connected with a time switch, of the condenser-discharge type, measures exactly the current passing through the patient's body. This system seems to be more suitable to measure currents lasting for only fractions of a second than the system used in the Italian apparatus, which consists of a milliammeter with a "set-up stop." The inexact figures obtained with the former system led Sogliani (1939) to discard the preliminary measurement of the resistance and to use invariably 110 volts. I cannot agree to this method In this way Sogliani nearly always has to make two attempts before he obtains a fit. That he obtains the fit in a second attempt with the same voltage is explained by the fact that every passage of current diminishes the resistance. There is no doubt that the control of resistance makes the method much more exact and should not be neglected.

The convulsion threshold varies considerably from person to person. With our technique we generally need currents of 70–110 volts and 300–600 milliamps to produce the fits. The shocks are generally provoked twice a week as in Meduna's cardiazol therapy. In the Rome clinic up to 30 attacks are still generally given. The petits mals are not counted, because we succeed in provoking a grand-mal fit after a second attempt in nearly every case Not all clinics agree on the number of attacks necessary in convulsion therapy. I do not intend to discuss this question; but, if the electric treatment proves less harmful than cardiazol therapy, it will be easier to continue the treatment for a longer period, though patients who do not improve after the first five to ten shocks seldom do later A closer sequence of electric shocks should be tried, to see if this makes the convulsion therapy more effective There is no cumulative effect of an injected drug, and Sogliani (1939) produced several fits in one treatment within 10–20 min without any harm to the patient, who is unaware of the several applications owing to retrograde amnesia.

The attack corresponds on the whole to the attack provoked with cardiazol The essential difference lies in the latent period. On the closure of the circuit the patient loses consciousness and is almost immediately seized with generalised tonic contraction. In rarer cases the muscular contractions set in half a minute after the loss of consciousness. Even in these cases the patient is unaware of any latent period The main difference from genuine epilepsy is the longer tonic and shorter clonic phase The same difference has been noticed by several other investigators in cardiazol therapy It is perhaps still more pronounced in the electric fit Just as with cardiazol, the patient opens his mouth at the beginning of the attack, and it is therefore easy to insert a rubber gag between the teeth to prevent him from biting his tongue In comparatively rare cases there are loss of urine and fæces and seminal emission Frothing at the mouth is also rare

---

* Manufactured by Solus Electrical Co., Ltd., 7, Stanhope Street, London, N W 1

After the attack the patient awakens slowly and regains consciousness after a few minutes He is able to speak although somewhat drowsy After 8–10 min he seems completely normal and does not show any psychomotor agitation When put to bed he sleeps quietly for a few hours, awakening completely restored But, since we have no reason to fear cardiac arrhythmia (which we never saw), we generally do not insist on putting him to bed

COMMENTS

The advantages of the method are obvious All the disagreeable subjective sensations present in cardiazol therapy are missing There are always instantaneous loss of consciousness and retrograde amnesia, even if the amount of current has not been sufficient to provoke a fit Therefore the patients never refuse to continue treatment because of disagreeable memories Another advantage for patient and nursing staff is that psychomotor agitation is almost unknown in electric-shock therapy The patients behave like genuine epileptics after an attack and are generally quiet and drowsy and sleep if we want them to sleep Only in a very few patients have we seen a slight agitation, but these cases do not seem to be more frequent than in genuine epilepsy A further advantage is that there is no need for intravenous injections Economy is also made possible both in expensive drugs and in nursing staff

I have never seen any fractures, dislocations or ruptured muscle due to this treatment, but it cannot be stated definitely that they cannot happen The awkward postures adopted in cardiazol fits are rare, and in this respect the electric fit differs less than the cardiazol fit from the genuine epileptic attack Perhaps fractures and dislocations may be less frequent because the fit does not develop in a state of motor agitation as in cardiazol attacks, in which the patient often fights with the nurses and has his muscles strongly contracted when the violent fit sets in

In comparing the different methods of convulsion therapy the first question should be as to which of the several treatments entails a minimum of harm to the patient With the cardiazol treatment the problem is whether there are undesirable mental sequelæ which do not belong to the normal course of the psychosis but are mental changes due to the cardiazol intoxication Dynes (1939) and others described mental changes which appeared rather typically in a percentage of patients who had been treated with more than ten injections In the electric-shock treatment we never found, and would not expect to find, anything like this after fits provoked without intoxication of the brain The above-mentioned mental sequelæ acquire greater importance through anatomical investigations made by Accornero (1939) and others on animals treated with drug-induced convulsions Accornero is now studying histological changes after electric shock His investigations have not yet been concluded, but I understand from a personal communication that, even with a much higher voltage than we use in man, the animals seem to show only unimportant reversible changes

The number of cases so far treated is still too small to allow definite conclusions to be drawn The methods of Sakel and Meduna have been discredited by many critical physicians because the percentage of remissions they had found in the beginning was not confirmed by any other worker We do not wish to commit the same fault by drawing conclusions from an insufficient number of cases and after too short a period of observation According to information given by several institutions it can only be said that the number of recovered and improved cases of schizophrenia corresponds at least to that of the remissions of cases which, in the same clinics, were treated with cardiazol Sogliani (1939) gives an even higher percentage of remissions than with cardiazol, but his cases are much too few to draw conclusions from I have started the method in several clinics and hope to report later, including the experiences of different investigators The sole purpose of this paper is to draw attention to the method

Opinions about the therapeutic value of shock treatment in general are not yet definite We have no reliable statistics of spontaneous remissions from the period before shock treatment was introduced But most psychiatrists agree in admitting that important progress has been made with the various kinds of shock treatment. Producing fits by the electric method may be considered a technical advance on Meduna's treatment and may become extremely useful in provoking fits during insulin coma, especially in view of the fact that injection of a toxic drug into a comatose patient can now be avoided

In the experimental study and diagnosis of epilepsy *cardiazol has not given the expected results, the* convulsion threshold with cardiazol in many epileptics being no lower than in other persons (Janz) The metabolic and brain conditions in fits produced by electric shock much more resemble those of genuine epilepsy than they do in fits produced by drugs or by hyperventilation, consequently electrical stimulation may be expected to be of greater use in the diagnosis and study of epilepsy

I thank Prof U Cerletti for enabling me to assist at the elaboration of the new method and Dr Bini for many suggestions and for keeping me informed of every technical advance

REFERENCES

Accornero F (1939) *Riv Patol nerv ment* 53 1
Cerletti, U and Bini L (1938) *Arch gen Neurol Psichiat* 19 3
Dynes J B (1939) *J ment Sci* 85 403
Sogliani G (1939) *Rass Studi psichiat* 28, 1

The Lancet 100 Years Ago

Dec 7, 1839, p 414

From a leading article

To read some persons' writings, it might be supposed that "medical etiquette" was a mystery, or perhaps a science which required to be regularly learned like chemistry or botany, before a physician or surgeon could conduct himself properly in the professional circle Indeed, it is surprising that a *chair* of Medical Etiquette was never created at either of our Universities, or a course of lectures on it made "compulsory" at the Colleges An impression prevails that some code of etiquette exists, venerable for its antiquity, and shut out from general perusal, by which powdered physicians and practitioners in pumps square their own conduct, and expect ignorant inferiors respectfully to abide influenced by that instinct of correct submissiveness which naturally belongs to the humble

GENERAL MEDICAL COUNCIL

WINTER SESSION, NOV. 28–30, 1939

AT the opening of the 150th session of the council on Nov. 28 Dr. J. H. Burn, a new member appointed by the Privy Council, was introduced by Sir Farquhar Buzzard, and Mr. E. L. Sheridan introduced Mr. Adam Cubie, L.D.S., as an additional member under section 16 of the Dentists Act, 1921. Notice was received of the appointment by the Privy Council of Prof. W. H. Gilmour, M.D.S., as an additional member under the same section. The retiring president, Sir Norman Walker, then read the address reported in this column last week. At its conclusion Mr. H. L. Eason was elected president and proposed from the chair a vote of thanks to Sir Norman Walker, mentioning the many services he had rendered to the council in his thirty years of membership, above all others in connexion with the education and registration of medical practitioners in India. Mr. Gamgee, who seconded the vote, said that Sir Norman would take with him into his retirement the gratitude and affection of every member of the council. Dr. Letheby Tidy and Dr. J. W. Bone were then elected treasurers of the council.

After consideration in camera it was announced that the following names had been restored to the Medical Register: Patrick Joseph O'Shaughnessy, Douglas Chatham Pim, Frederick Arthur Pring, David West; and the following names to the Dentists Register: Hubert Lancelot Terry Bramley, John Herdman Faulding, Michael Henry Harte, James Sharples Hopwood.

Charges against Medical Practitioners

The council then dealt with charges of infamous conduct arising out of convictions for drunkenness. No names in this group were erased from the register, except that of William Aloysius Kennedy. Mr. Kennedy had been first summoned in November, 1937, after convictions at Newcastle-on-Tyne in March, August and October, 1937. He had then been warned, judgment being postponed until November, 1938. At that hearing he attended but the testimonials he produced did not satisfy the council and judgment was further postponed until May, 1939. Mr. Kennedy did not then attend and judgment was postponed until the present session.

PROCURING MISCARRIAGE

The case of Arthur Patrick Kennedy, registered as of 24 Newbridge Street, Wolverhampton, Staffs, L., L.M. 1913, R.C.P. & S. Irel., who had been summoned to appear before the council on the following charge:

That you were on June 22, 1939, convicted at the Chester Assizes of the following misdemeanour, namely, of conspiring with other persons to use an instrument with intent to procure the miscarriage of two women, and were sentenced to eight months' imprisonment.

Mr. Vincent Matthews, solicitor, appeared on behalf of Dr. Kennedy. Mr. F. P. Winterbottom, of Waterhouse & Co., solicitors to the council, asked leave to amend the charge to read "namely of conspiring with other persons unlawfully to procure the miscarriage of two women." Mr. Matthews raised no objection. Mr. Winterbottom described the circumstances leading up to the conviction. The first illegal operation had been performed by a woman, but respondent had made all the arrangements and driven the patient home in his car; he had been paid £10. In the second case he had received £5 for making similar arrangements. He had been charged together with the woman who had performed the operation and the two women in whose houses the operations had respectively been performed. The women had been convicted on a number of other similar charges with which the doctor had not been concerned.

Mr. Matthews argued that this case was rather different from the typical case of its kind. The first patient had been made pregnant by a personal friend of the doctor, and the second patient had declared her intention of committing suicide if the pregnancy continued. Respondent had a wife and six children. A petition on his behalf had been signed by nearly 4000 people.

Dr. Kennedy's name was erased from the register.

ADULTERY

The case of George Holman, registered as of St. Gennys, Dover-House Road, Roehampton, London, S.W.15, M.R.C.S., L.R.C.P., 1909, who had been summoned to appear before the council on the following charge:

That being a registered medical practitioner (1) You committed adultery with Olive May Dunand, a married woman, of which adultery you were found guilty by the decree of the Probate Divorce & Admiralty Division (Divorce) of the High Court of Justice dated November 8, 1938, and made absolute on May 15, 1939, in the case of Dunand v. Dunand and Holman, in which you were the co-respondent. (2) You stood in professional relationship with the said Olive May Dunand from July, 1923, to March, 1938, and with Ernest Lennox Dunand, the husband of the said Olive May Dunand, and his family, at all material times. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

Dr. Holman was represented by Sir Thomas Carthew, K.C., instructed by Messrs. Le Brasseur & Oakley, for the London & Counties Medical Protection Society. Mr. Winterbottom read the transcript of the divorce proceedings. Respondent had attended Mrs. Dunand at the birth of the second of their four daughters and in that way had become introduced to the Dunand family, continuing to attend them professionally. Towards the end of 1934 Mr. Dunand had noticed a change in his wife's feelings towards him; at that time she had had an operation in a nursing home. He had asked the doctor if the operation had caused any change. Subsequently she had on two or three occasions gone away by herself, making various excuses to stay away. About July, 1936, he had spoken about this, and she had suggested a separation, to which he did not agree. He himself had been ill in 1936 and had consulted Dr. Holman professionally and told him about the difficulties with his wife. As a result of conversation with friends he had told Dr. Holman, later in that year, that he thought the domestic trouble was due to his wife's infatuation with the respondent. During 1936 his wife had frequently been out in the evenings, and Mr. Dunand had said that respondent was not keeping away from her enough. He had spoken to his wife about it, and she had been very upset. During 1937 she had again spoken once or twice of a separation. On Dec. 31 the Dunands and the Holmans had dined together in town. On the last Sunday in January, 1938, Mr. Dunand had gone out to play golf, and had met his wife and respondent driving together; he had been disturbed by this, but did not really suspect adultery. On the following day he had instructed his solicitor. The petition alleged frequent adultery. The inquiry agent had testified that on March 8 he had followed Mrs. Dunand to a flat, and had later seen the doctor leave that place. On March 11 he had seen the doctor let himself into a flat with a key, and subsequently the two had left separately, and there had then been no reply to the bell Similar observations had been made on two later dates The divorce had been granted on that evidence

Mr Carthew, addressing the council in defence, said that, as none of the facts were disputed, he would not call the respondent or his wife as witnesses, but the respondent was ready to testify if the council thought fit He read statutory declarations from four professional colleagues to the professional and personal integrity of the respondent, and stressed that the affection between Dr Holman and the lady who was now his wife had been maturing for a very long time and that they had married as soon as the decree had been made absolute Dr Holman had suggested in 1936 that he should stop attending the family but had been persuaded to continue, otherwise this unhappy situation would never have developed

After deliberation in camera the council decided to direct the Registrar to erase Dr Holman's name

The Pharmacopœia

Owing to the death of Dr A P Beddard the chairmanship of the British Pharmacopœia Commission had become vacant The selection committee recommended the appointment of Dr J A Gunn, formerly professor of pharmacology in the University of Oxford and now professor of therapeutics in the University and director of the Nuffield Institute for Medical Research The council confirmed the choice of the selection committee Professor Gunn has been a member of the commission from the time of its formation eleven years ago

The pharmacopœia committee reported to the council that the work of revising the pharmacopœia is so far advanced that but for the war the new B P could be published during 1941 The date of publication must now be subject to modification The cost of printing and of paper may make it undesirable to publish the book in war-time, and national interests have also to be considered Many objections, for example, could be raised to the publication of a set of new standards at a time when trade conditions are disturbed and supplies are difficult. During the last war similar problems arose, especially in relation to sugar, glycerin, lard and various oils, and in some instances it became necessary for the council to modify the pharmacopœia Fortunately the council now has the expert advice of the commission on problems of this kind The commission has made contact with the Ministries of Food and of Health The Medical Research Council has formed a therapeutic advisory subcommittee to advise the medical and pharmaceutical professions on the relative therapeutic importance of drugs, and on economy in the use of drugs. The secretary of the commission, Dr C H Hampshire, has also been appointed secretary of the subcommittee The commission is working in cooperation with the Association of British Chemical Manufacturers To help in providing substitutes for foreign proprietaries the commission has been asked to agree upon official names for the British products and to include these names in the B P at the first opportunity Monographs on the British equivalents are in preparation and the commission may ask the council at a later stage to sanction the issue of an addendum to the B P containing these monographs.

PUBLIC HEALTH

A SMALL OUTBREAK OF PARATYPHOID FEVER IN A GENERAL HOSPITAL

By J V A Simpson, M D Lond, D P H
MEDICAL OFFICER OF HEALTH, TORQUAY

Some noteworthy features are presented in a small outbreak of five cases of paratyphoid fever, designated A, B, C D, E, occurring in an adult female surgical ward of 20 beds 19 of which were occupied, in a general hospital, The first intimation was received on Feb 10, 1939, when A, C, and D were notified with positive agglutination reactions and some clinical symptoms, on Feb 19 E was notified and on Feb 20 B On this day also another patient, X, was found to be carrying the organism without showing any clinical manifestations

The following is a brief account of the cases

A aged 15, admitted Jan 14, hernia, operation 22nd, onset of paratyphoid 27th diagnosed Feb 10, agglutination (H-antigen) 1 in 2560, fæces and urine positive on 13th

B, aged 72, admitted Jan 12, fracture, no operation, onset of paratyphoid 20th, diagnosed Feb 20, agglutination 1 in 2560, fæces positive on 20th

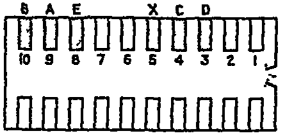
C, aged 37, admitted Dec 10, appendix abscess, operation on 12th, onset of paratyphoid Jan 31, diagnosed Feb 10, agglutination 1 in 1280, urine positive on 13th

D, aged 15 admitted Oct 6 fracture, operations on 7th and Nov 25, onset of paratyphoid Feb 2 diagnosed on 10th, agglutination 1 in 650, fæces positive on 20th

E, aged 11, admitted Feb 6, fracture and concussion, no operation, onset of paratyphoid 18th, positive blood culture on 20th

None of these patients had been in contact with any known case of paratyphoid B fever before admission, and it was deduced that A, B, C, and D were infected on or about Jan 12–16, whereas E could not have been infected until Feb 6 or later Inasmuch as the food for both patients and staff is prepared in a central kitchen and the disease was limited to one ward, the possibility of kitchen infection was excluded

On Feb 20 the patient X (with a positive agglutination of 1 in 2560, the titre being raised probably by the antigenic stimulus from the release of organisms at the operation) was reported to have *Bact paratyphosum* B in abundance in her fæces and urine, although no history of paratyphoid fever could be elicited



Relations of beds of patients with paratyphoid fever Case X harboured the organism but showed no clinical manifestations of the disease

Towards the *end of August*, 1938, this patient became ill with fever, malaise and indefinite abdominal symptoms, which ultimately compelled her to go to bed, where she remained for three months The condition was suspected to be of streptococcal origin, but cholecystitis developed, and removal of the gall bladder was advised To this end X was admitted to the ward in question on Jan 12, and was operated on on the 20th, when the gall bladder was found in a state of chronic cholecystitis with a few black calculi, the walls were thickened and there were recent adhesions Unfortunately no patholo gical examination of the gall-bladder was carried out Recovery was uneventful, and at no time did the patient show any symptoms suggestive of any other pathological condition After the operation her carrier condition gradually cleared.

In point of time the infections of A, B, C, and D followed immediately the admission of X to the ward. It might be argued that she was a victim with A, B, C, and D; but it is significant that at no time did she exhibit any physical sign or symptom of the disease, and, when her position in relation to the other occupants of the ward is considered, it is difficult to escape the conclusion that she was the origin (A somewhat similar small outbreak has recently been described by Laidlaw 1938). The relation of the patients in the ward is shown in the accompanying figure.

The feeding and nursing of the patients were not carried out in any particular or regular sequence, and this renders the contiguity of the beds occupied by the infected patients all the more striking Bed 6 was unoccupied Jan 12–17, bed 7 was vacant Jan 14–29—i e., at the time A, B, C, and D were presumed to have been infected—but none of the patients in these two beds before or after those dates contracted paratyphoid fever Jan. 28–Feb 6 bed 8 was empty, but Jan 12–28 this bed was occupied by a woman transferred from another ward; she was confined to bed with an ulcerated leg, and the question arises why this patient escaped infection, inasmuch as she was in exactly the same circumstances as case B. The only feature which was ascertained and may have a bearing on this was that, in contrast to A, B, C, and D, the occupant of bed 8 was of a reserved and distant disposition; she made no friends and had nothing to do with the other patients in the ward.

Jan. 12–19 inclusive—i.e., before her operation—X was up each day after dinner and was capable of getting about and attending to her own toilet; A, C, and D were also up part of the day, and B was in bed all the time The infection from X may have been carried by the nursing staff to the other patients, but in this event there is no reason why the ward distribution should have been what it was An alternative suggestion, however, is that X, who was particularly generous in sharing with others the fruit and food brought in to her, may have infected the first four patients (with whom she was especially friendly) during the time she was up part of the day. In another outbreak (Frazer, Glover, and Glass 1937) it was seen how *Bact paratyphosum* B could survive for some time on such an unlikely medium as the outside crust of bread. And it is noteworthy that from about Jan. 20, when X was confined to bed and her movements were restricted, no further infection took place until Feb. 6, when probably an entirely different origin was concerned.

The case of E remains to be considered After the first notifications full precautions were instituted, including three successive examinations of the blood, fæces, and urine of the medical, nursing, and domestic staff who might have been involved and of the remaining patients in the ward. On Feb 13 Sister Z was found to be excreting *Bact paratyphosum* B in her fæces and on the 18th in her urine In August, 1938, this woman had complained of abdominal pain and discomfort, which subsided and were attributed to visceroptosis; later some symptoms recurred, and on Oct 10 an appendicectomy was performed. She made a satisfactory recovery, left hospital on Oct 30, being given extended leave until Feb 1, to enable her for private reasons to be with her parents at her home which was in another town; during that time she stayed there and did not undertake any nursing work or preparation of food. Apart from this illness, which may have been an unrecognised infection of paratyphoid fever, there is nothing to indicate how she came to be excreting the organism. Since Z did not return to hospital until Feb. 1, she had no connexion with A, B, C, and D, who were infected some time before that date

An interesting point is whether the infection of E is primary or secondary; it is unlikely that she was a primary case with the first four, for A, B, C, and D had been infected and were already ill for some days before E was admitted. If she was a secondary case, it is strange that she was the only patient involved; for by the date of E's admission all the patients in the ward were confined to bed. An alternative is that she was infected by Z. E was admitted with concussion late on Feb 6 after an accident; she was accordingly confined to bed and was hand-fed. Z took a special interest in her and during the first night spent a good deal of time attending to her; and it is conceivable that this might have been the source of E's infection It is true that she gave rise to no further case, but her association with E was far more intimate than with any of the other patients in the ward. This explanation is possible, even if this case was the fifth in point of time, of a series who for all practical purposes were lying in contiguous beds, no infection took place in the ward during more than a fortnight preceding the admission of E (who had the most severe clinical attack).

It was recommended to the medical staff of the hospital that in future all cases of chronic cholecystitis should be investigated for the presence of organisms of the typhoid or paratyphoid groups, and that, pending a negative result, these patients should be carefully barrier-nursed and treated as potentially infectious. There is the obvious corollary that adequate facilities should be readily available for maintaining strict personal hygiene among all the staff, and more important still that these facilities should be fully used.

SUMMARY

A small outbreak is described of five cases of paratyphoid fever in a general hospital after the admission of a patient with chronic cholecystitis, who proved to have an abundance of *Bact paratyphosum* B in her fæces and urine.

It is suggested that all patients with gall-bladder disease should be treated as potentially infectious until the contrary is proved.

REFERENCES

Frazer, W M, Glover, B T. J., and Glass, V. (1937) *Brit med J.* 2, 369

Laidlaw, S (1938) *Lancet*, 2, 855.

MEDICAL RESEARCH COUNCIL OF IRELAND —A part-time grant has been made to Dr Martin Little to enable him to carry out an investigation of the nervous control of the digestive glands Grants-in-aid have been made to Dr W. R. F. Collis, Dr. Oliver Fitzgerald and Dr Donal Murnaghan The following have had their grants renewed · Mr Patrick Boyle, M Sc., Mr T G Brady, D Sc, Dr P J Holland Clarke, Mr. R P. Cooke, M Sc, Dr Cecil Mushatt, Dr. Oliver FitzGerald, Dr D. K. O'Donovan, Dr E. S Duthie, Dr Ninian Falkiner, Prof W. R Fearon and Prof. R. W. Ditchburn, Ph D, Dr Gerald FitzGerald, Prof. J. B Gatenby, D Sc, and Miss O. E. Aykroyd, Dr. David Mitchell.

METROPOLITAN EAR, NOSE AND THROAT HOSPITAL.—The outpatient department of this hospital is open every weekday from 10 till 11.30 A M

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month, his name can be seen later in the half yearly index

FROM A NORTH COUNTRY PRACTITIONER

II

I HAVE no regrets that I chose to be a general practitioner The avenues of escape into specialism, public health, general or special hospitals made and make no particular appeal I am satisfied to form a small almost innominate part of what the higher ranks in expansive moments refer to as the "backbone of the profession," but more generally as "only G P s" To hospital physicians and surgeons cases are interesting examples of disease and their concern is with pathology and treatment Usually they see neither the beginning nor the end To them the patient's individuality, his temperament, his domestic, emotional and financial environment are of minor importance To the general practitioner they are a primary concern My patients expect close personal interest and hope to be relieved of their disease They give me as much in confidence as I give in advice If I cannot deal with their condition or arrange for it to be dealt with satisfactorily they expect me to say so Otherwise they go elsewhere In consequence some hold that the practitioner has become nothing more than a glorified cinema attendant with a perpetual "This way, please" on his lips I think it takes a trained and experienced person to listen to a patient's tale patiently, bear with his prejudices, sympathise with his outlook, lead him through the warren of specialties to the right quarter, and still retain him as a patient Practice brings me into contact with a large number of different people, and since people above all interest me I am content. I am constantly able to learn more of human nature, constantly reminded how impossible it is to know the motives of others, constantly surprised at people's goodness, badness, and vanity I have seen whole families disrupted over a legacy of one or two hundred pounds I have seen examples of devotion and kindness which I can hardly credit In spite of our loss of caste since the introduction of the Insurance Act, in spite of our unpopularity as a profession, I have no desire to change

• • •

The joy with which attacks like "The Citadel" are greeted is a measure of our popularity Probably all professions are unpopular because the public feels that it has had to give too much away to professional men in more senses than one We are certainly less unpopular than the Law or the Church And the public reserves unpopularity for the mass, the individual remains free A patient delights to contrast his welcome at a house with mine He is an insurance manager who investigates and often rejects claims on behalf of his company and is sure that if I did his work for a month my view of human nature would be entirely different Unlike other professional men our doings private and professional, form a staple subject of conversation in the factory, at the local cooperative shop, and in the pub The upshot is that for some people Dr X is no good at all and for others he can do no wrong Osler said there were only two sorts of doctors those who practice with their brains and those who practice with their tongues It may be so, but the public is quite incapable of making the distinction and on the whole we receive a great many more ha'pence than kicks I have never met a man with a lower opinion of the profession than the secretary of a medical agency whom I interviewed He made it clear that all doctors were mercenary, untrustworthy and unscrupulous—and incidentally that he himself was underpaid—and would have heartily agreed with the view that diagnosis is the physician's forecast of disease by the patient's pulse and purse All that emerged from the Stygian gloom of this interview was an epileptic locum of whom I had to disembarrass myself at the height of an influenza epidemic Practice in general is not nearly so mercenary as public haggles over the capitation fee and the outlook of agency secretaries might suggest But we do not pretend to be complete philanthropists. An old practitioner used to say "If your patients annoy you, aggrieve or despitefully use you, don't be angry Put it on the bill" Another wrote, "Get all you can Then eventually you will be given a long obituary notice and die beloved by all those who never knew you"

• • •

Practice is not what it was We are no longer free to put a night-capped head out of the window in response to a night-call and say "Go to hell," as a distant predecessor was wont to do when so inclined The inclination is still there but it cannot be done in these days Intelligent doctors recognise that their art has limitations and would get on better with the public—no longer completely uninstructed—if they said so unequivocally We no longer dictate in the sickroom, rather we suggest and if we are wise we no longer fly into a rage when our every instruction has not been carried out or some time-honoured home treatment has been introduced in addition It is just as effective to explain to patients that they are paying for advice and that it is their business whether they take it or not If they like to put medicine down the sink, that again is their business. Many bottles of medicine do no good, probably few do any harm Many a patient however instinctively shares Voltaire's view that physicians pour drugs of which they know little into a body of which they know less. What grandmother inculcated so firmly is not readily eradicated Many patients have a pathology and treatments all their own A good deal of treatment goes on which the doctor never ordered just as a great deal is repeated which the doctor never said. One learns to tolerate sundry herbs, green ointment from a local shop, goose grease and even dog fat, whilst the man with a private store of homœopathic aconite pills is always with us Fresh cabbage leaves are still to be found bound on to rheumatic joints. Some families produce definite reasons for all their ills. One old lady never tired of telling how forty years ago on a very hot day she drank a jugful of cold lemonade As a result the complete lining of her stomach came away Ever since she had had to live on a most carefully selected diet After a cerebral hæmorrhage she forgot her pathology and ate widely and freely with no gastric disturbance Her daughter considerably overweight was sure that milk was good for her persistently high blood-pressure She could not be persuaded otherwise, and as she spent her time in bed, she steadily increased in weight with four glasses of milk a day in addition to her ordinary food. This was in the days before the introduction of mass sugg in the shape of "Milk for Strength," "Bread for Energy" and "Guinness is Good for You" The number of patients inquiring whether they should have a Guinness, or explaining that they have already begun to have one, leaves one in no doubt as to the efficacy of good advertising. Priestley sums up the situation with "A million donkeys listen and nod and pull away at the cart and do not hear from behind the shafts the scornful snigger." The profession is no more proof against it than the ordinary public. The persistent and clever advertising of foreign drug firms has made their preparations household words in a profession in which post-hoc fallacies abound.

MEDICINE AND THE LAW

Inquest Statements

JERVIS on Coroners makes it clear that depositions taken at a coroner's inquest, together with any inquest verdict or rider, are inadmissible in an action for damages for negligence This position was established by Barnett *v.* Cohen in 1921. In 1918 Lord Justice Swinfen Eady had ruled (in Bird *v.* Keep) that the verdict in the coroner's court could not be accepted in the High Court as evidence of the cause of death. A recent decision in the Court of Appeal (Sloane *v.* Hanson) shows the limited use of the depositions. A plaintiff has been allowed, in the preliminaries to a icvil action, to administer an interrogatory asking the defendant whether he did nnot at a specified inquest make a specified statement as contained in a copy of the deposition taken by the coroner. This decision is a natural consequence of the judgment in Calmenson (printed *per incuriam* as Calminster in Jervis) *v* Merchants' Warehousing Co. Ltd. There Lord Dunedin had no doubt that the depositions could be used for cross-examining a witness, though he deprecated the arrangement to which the parties to that action dhad agreed. By consent of both sides the coroner's depositions had been made available in a civil case and had then supplemented that evidence by a further instalment of testimony from one of the witnesses whose deposition had already been used.

Divorce for Insanity

In the Divorce Court last week the President made a statement emphasising the requirement of independent medical opinion where divorce is sought on the ground of incurable insanity under section two of the Herbert Act. Respondents in these cases, if of unsound mind, cannot appear on their own behalf; a guardian *ad litem* (for the purpose of the proceedings) is appointed. If the interests of the respondent are in the hands of the Official Solicitor, a searching inquiry is made into the matters on which the court has to satisfy itself—namely, the existence of incurable unsoundness of mind, and the fact that the respondent has been continuously under care and treatment for a period of at least five years immediately preceding the petition. In the particular case before him last week a guardian *ad litem* had been appointed by family arrangement and no independent medical opinion had been obtained. The President drew attention to the now established rule of general practice that, except in exceptional circumstances, the respondent's interests must be safeguarded by independent medical examination, and in this respect the guardian appointed under family arrangements must act just as strictly as would the Official Solicitor.

GERMANY

(FROM A NEUTRAL CORRESPONDENT)

DYSENTERY

Dr. Ernst Rodenwaldt of Heidelberg notes in the *Deutsche Medizinische Wochenschrift* for Nov. 17 that, in the last war dysentery headed the list of infectious diseases in the German army with more than 155,000 cases. He remarks that the results of vaccination against this group of diseases have proved unconvincing. But he thinks the use of a polyvalent vaccine prepared with special reference to the Shiga-Kruse bacillus is justified. For an epidemic of dysentery is apt to be extremely demoralising, and when it is due to the Shiga-Kruse bacillus and the patients are already debilitated the mortality may reach a cholera level Rodenwaldt urges that even before any epidemic has broken out care should be taken to keep the subjects of intestinal disease apart from their fellows

NOTIFICATION OF CONGENITAL ABNORMALITIES

The Ministry of the Interior has issued an order making certain malformations notifiable at birth These include idiocy, mongolism (particularly when associated with blindness and deafness), microcephaly, severe or progressive hydrocephalus, defects of the limbs, clefts of head and spine, and certain paralyses.

WETTEREMPFINDLICHKEIT

The meteorological and geophysical institute of the University of Frankfurt a.M has instituted research into sensitiveness to weather conditions. It has appealed to all weather-sensitive persons, including the war-wounded with scars which become painful under certain meteorological conditions, asking them to set out their experiences on special questionary forms.

BACK TO NATURE

On the initiative of the Reichsgesundheitsfuhrer, a society has been established for the cultivation of natural living and healing This body, under the charge of Dr. E G. Schenck, is to undertake the scientific study of certain problems concerned with public health, and is to put its results at the service of the public.

The death is announced on Nov. 6 of Dr. Alwin Besserer, honorary professor of social medicine at the University of Munster, at the age of 63.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 18, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1359; whooping-cough, 1334; diphtheria, 903; enteric fever, 22; measles, 1830; pneumonia (primary or influenzal), 637; puerperal pyrexia, 174; cerebrospinal fever, 37; poliomyelitis, 13; polio-encephalitis, 1; encephalitis lethargica, 1; dysentery, 46; ophthalmia neonatorum, 81. No case of cholera, plague or typhus fever was notified during the week.

Deaths.—In 126 great towns, including London, there were no deaths from smallpox, 1 (0) from enteric fever, 1 (0) from measles, 1 (0) from scarlet fever, 3 (1) from whooping-cough, 20 (1) from diphtheria, 31 (3) from diarrhœa and enteritis under 2 years, and 31 (8) from influenza. The figures in parentheses are those for London itself.

West Hartlepool had the only death from typhoid Fatal cases of diphtheria were scattered over 21 great towns, Liverpool reporting 6 Birmingham had 11 deaths from diarrhœa. Three deaths each in Liverpool and Manchester were attributed to influenza

LETTERS TO THE EDITOR

A PLAN FOR BRITISH HOSPITALS

SIR,—It is unfortunate that in putting forward his plan your commissioner should have delivered a number of broadsides against the consulting staffs of the voluntary hospitals and should have linked the scheme with an altruistic plan to rescue the consultants from penury. It is to be regretted that eminent members of the profession, in replying, should have spent all their energies in dealing with minor points in the plan. Surely any hospital plan for this country or for any country should provide an adequate hospital service for the needs of the whole community, facilities for the training of medical and nursing personnel, opportunities for medical research, and an adequate livelihood for the personnel employed in the service.

The main criticisms offered by your correspondents have been:

(1) The lack of need for decentralisation—and much of their argument has been based on the recent E M S schemes.

(2) The inconvenience of travel to patients, patients' friends and medical personnel, if hospitals were decentralised.

(3) That full-time medical service attracts an inferior grade of person.

(4) The pre-eminence of the voluntary hospital in ethical standards and the assumption that the hospitals are still "voluntary."

1. The report of the Voluntary Hospitals Commission, under the chairmanship of Lord Sankey, stressed—as your special commissioner noted—the need for cooperation among the voluntary hospitals and the need for some form of regionalisation. Unreserved defence of the present grouping and arrangement of voluntary hospitals, therefore, is an indication of individual prejudice and vested interest rather than reasoned thinking. One does not wish to decry the work of the great London teaching hospitals, but surely it is not in keeping with the present distribution of the population that the majority of them lie within an area some three miles in diameter in the centre of London.

2. Many of your correspondents criticise the inconvenience caused to patients, patients' friends and medical personnel in visiting hospitals in some decentralised scheme. Nothing illustrates more adequately the biased opinion of many of your correspondents in putting forward this plea. Several years ago I was acquainted with the working of two large teaching hospitals in London. On one occasion in a ward of some twenty-odd beds there were only four patients who lived within the area of Greater London. There were patients from Carmarthenshire, Devonshire, Yorkshire, Lancashire and many, of course, from the Home Counties. Members of the honorary staff of teaching hospitals often serve on the staffs of local hospitals and of municipal hospitals and have their consulting rooms in another place. During the day they spend a considerable amount of time travelling from one to the other. Surely it would be much more economical if they were to be attached to one hospital and had a private consulting-room in an adjoining building or actually on the hospital premises. References to the absence of library facilities and the lack of cooperation amongst colleagues which would result from the hospitals being situated in suburban areas is hardly worthy of consideration. Many consultants have their residences in the country, to which they retire for the week-end. Surely the processes could be reversed and they could live in the country and come to the city for the week-end. The Royal Society of Medicine provides an excellent postal service of books to members, and, although not quite as pleasant as being able to browse in a library, there is no need for people to be cut off from library facilities, as members in the provinces have long realised.

3. Whilst agreeing with some of the criticisms of correspondents concerning full-time appointments, one is surprised at the injustice of many of their statements. In university life it has been the practice for many years for the staff to be employed full-time. This applies also to the legal profession, which in its conditions of practice resembles the medical profession more than, say, a department of chemistry. Although individuals may, as your correspondents suggest, settle down to an easy life in a full-time appointment, this is not true of the majority of university staffs. It is unjust to our colleagues who are at present working in professorial units and with the Medical Research Council to suggest that they have taken these appointments merely to have an easy life. Dr Bennett stated that on the Continent the full-time system did not apply to the professors. He did not mention, however, that most of the professors had spent many years in full-time work before attaining eminence and that it is largely on the reputation they have gained as teachers and in research that they are appointed to the chairs of medicine. In the Scandinavian countries there are many more full-time appointments than there are in this country and no-one would suggest that medicine in Denmark and Sweden is in any way inferior to that in this country. The competition of consulting practice does necessitate a man, to use your correspondent's phrase, "keeping alive," but so often his keeping alive is a superficial process. He skims the surface of knowledge because he has not the time to tackle fundamental problems and much of the research work undertaken by a person in consulting practice is of necessity descriptive or a collation of facts rather than of a fundamental character.

country, in order that the profession may give a lead in the developments which are necessary for the well-being of the community.

I am, Sir, yours faithfully,

Leeds, 1, Nov. 25 R. E. TUNBRIDGE

SIR,—Certain of the prospects of your commissioner may not be without attraction to some minds, for example, the hospital in the country, and a fixed income and a pension, but it is not the dreams of your commissioner that excite surprise and indignation so much as his nightmares One is tempted to believe that he bases his knowledge of the consultant's life on "The Citadel." Perhaps the study of medical history would mellow his outlook.

As regards the consultant, your commissioner appears to have fallen into certain vulgar errors. He seems to confuse the Harley Street man with the consultant, he hints at jealousy and envy, and he appears to cherish the fallacy that consultants are either fabulously rich or abjectly poor. There are those who make a good income and those who do not, both in consulting and general practice. This is not peculiar to consulting practice, and every man worth his salt can make a living. Many consultants purposely curtail their practice, deflecting some of it to juniors, in order that it shall not overwhelm what they consider their primary work, research and teaching. To imply that consultants are going round with their hats in their hands begging for a few crumbs of practice is nonsense. Most of every real consultant's practice comes from the best type of general practitioner, not because he wishes to be kind and patronising, but because he wants another opinion, just as we ourselves not infrequently want another opinion, and he wants the opinion of an expert, of one whose training and experience have brought him into frequent contact with the rarer conditions and sequences, and given him opportunities for research on them. Great care must be taken lest this question leads to a discussion of general practitioner versus consultant. Both may be highly expert, both possess the highest qualifications, but their function and their training are different. Both are needed. Both, under our present system, come into the closest contact with human nature with the veneer off.

Then as regards the financial difficulties of the voluntary hospitals. A state medical service would perhaps solve these, but this is not the only method; there is the example of the Mayo Clinic Accommodation for paying patients, with expenses graduated according to their means, attached to every big hospital and every special hospital, will go far to solve the financial troubles and abolish the degrading hospital begging to which we have had recourse in the last two decades In this way we may retain what seems to many of us a priceless heritage, and not one to be lightly swept aside amid the clouds of the hideous emergency of war.

I am, Sir, yours faithfully,

Regent's Park, N W 1, Nov. 23 F. G. CHANDLER.

SIR,—The emergency hospital schemes that are developing rapidly throughout the country have profoundly modified the functions and staffing of hospitals Under pressure of necessity hospitals are being extended, others reconstructed, and new hospitals are springing up, so that in the end a multitude of new beds will be added to those that now exist. It is clear that, as your special commissioner pointed out, new administrative problems will arise, even if only a proportion of these beds are ultimately retained for use in times of peace. Those in the public health service are watching these developments with the greatest interest, because it is more than likely that what is worth preserving of the new order will continue in use after the war is over. No doubt many local authorities, particularly the most progressive, will grasp the opportunity of using the most suitable of these added facilities to make good the shortage of beds, as they are empowered to do under the Local Government Act.

Among the questions raised by your correspondents are the situation, staffing, and administration (especially the regional administration) of hospitals generally. As regards situation, I think that the further erection of large hospitals in the centre of cities will be avoided in favour of the hospital of sanatorium type farther out in the country in a conveniently accessible position There are many diseases and some surgical conditions for which provision of this kind is undoubtedly best This is the view taken by the municipality here, where, for what are considered good and sufficient reasons, a new hospital of 1000 beds has been approved on a site well outside the city. On the question of staffing doubt is beginning to arise whether there will be enough visiting specialists to go round, especially as at present specialists, who, may also be engaged in medical teaching, are shared between the voluntary and municipal hospitals. In my experience of municipal hospitals fine service has been given by both groups Some of your correspondents express a decided preference for the staffing of hospitals on a part-time rather than on a whole-time basis, while in your leading article you say that "hospital work should be a career in itself" It seems to me that a judicious combination of whole-time staff along with a visiting staff of specialists would be the most effective solution. There are many younger medical men of high capabilities and excellent scientific training who would welcome an opportunity of joining a hospital staff on a whole-time basis.

The arguments in favour of "regionalisation" have been fully expounded in reports by various authoritative bodies, and it may be generally accepted that some form of cooperation between hospitals in wide areas will be necessary to make the best use of existing and prospective accommodation for the public generally Hitherto, hospital provision has been based on selecting particular diseases or stages of disease or groups of the population The report of the departmental committee on the Scottish health services says, "An adequate hospital service is essential for the public health" This implies a hospital system that takes under its wing all forms and stages of sickness and invalidity, and is sufficiently complete to enable all who require hospital treatment for cure or prevention to obtain it In normal times, this would be a big task, but today under the pressure of war the prospect of realising a more complete public health hospital service is sensibly nearer.

I am, Sir, yours faithfully,

A. S M MACGREGOR.

Public Health Department, Glasgow, Nov. 23

SIR,—We are a lucky profession, for we have the satisfaction of knowing that the community really needs us We have not had our hearts broken by unemployment or the monotony and insecurity of much modern business. But there is no natural right which rules that we shall necessarily not only go on having the fun of our work but also be handsomely rewarded for it After the war the community will be so poor and so crushed under a mountain of debt that standards of living and of hospital resources will be very humble It may be that we shall be lucky if we survive, with enough to eat and a roof over our heads Some of your correspondents now write as though the war were merely an interruption in the course of successful practice, they remind me of children looking out of the window before breakfast at the pretty red sky, ignorant of the fact that it is not a good day for a picnic

Your discussion on the plan for hospitals is being carried on too much at the wrong end—the Harley Street and consultants' end, instead of that of the GP and the community The midpoint of all medical work is the close and continuous personal relationship of family doctor and patient in the latter's own milieu, hospitals essentially and primarily grow out of the needs of these two parties We hospital consultants have our important functions but the future of hospitals is going to be determined by the need of the community Only if we have clear, disinterested and united guidance to offer will our profession be able to influence rightly the direction of change But of that disinterestedness, of that clearness of vision, of any united and intense consciousness of our true medical ethos and tradition, there is so far altogether too little evidence in this discussion The next step is not an elaboration of the suggested scheme, but rather the calling of a sort of œcumenical council to lay down the basis of our "faith and order" and find agreement on what are the fundamental bases of medical work With this as a yardstick, we could judge both our present systems and any future ones that may appear over our stormy horizon

I am, Sir, yours faithfully,

Liverpool, Nov 27 ROBERT COOPE

SIR,—Many of your correspondents appear to suggest the abolition of the consultant as a first step to hospital reform There are others who take the opposite view, consultants, they argue, are the teachers of the future generations of practitioners and are thus the trustees of the nation's health Perhaps it would remove difficulties if there was an answer to the question—"Who is a consultant?" In order to define the status I would venture to suggest the formation of an Association of Consulting Physicians and Surgeons, limited in the first instance to the teaching hospitals in Great Britain and Ireland, and to those in charge of in- and outpatients This association would not act in competition with the royal colleges its functions would be entirely different

I venture to submit that such a body would be welcomed both by the general public and by the medical profession Those who are best able to judge —viz., the general practitioners—continue to believe, or so one must assume, in the knowledge and skill of the genuine consultant, otherwise they would not continue to come to him and to bring their families to him for advice and help

I am, Sir, yours faithfully,

Wimpole Street, W Dec 4th HENRY MACCORMAC

SIR,—One of the greatest defects in the present voluntary hospital system—in London at least—appears to me to lie in the constitution of its various governing bodies In an individual hospital two classes of persons are represented on the governing body—the honorary medical staff and the charitable donors The former are adequately represented but the representatives of the charitable donors are confined mainly to a non democratically elected or selected few who have given, or are likely to procure, large sums for the hospital Any rich and moderately respectable person who cares to present a voluntary hospital with £10,000 can be on the controlling board within a month, even if he be totally incompetent Certain classes of people intimately concerned with the hospital and its service are not represented in its *local* management at all (*a*) its nurses, (*b*) its social workers or almoners, (*c*) local authorities of its district, and (*d*), most important, the "hospital class" for which the public wards and outpatient clinics cater, and which incidentally supplies much if not most of the hospital's income through the HSA or individual contributions If any section of the hospital-users is represented on the board, it is rather the newer private-wing class, whose interests so far as local hospital development and policy are concerned are not always identical with those of the much more numerous non-private, though usually also paying, patients of the general wards and clinics Are the lay members of the boards, chosen on account of charitable gifts, position in society, or skill in managing their own businesses, and seldom primarily because of capability in social or health administration, the best group to control the efficient running of a modern hospital? Do they understand the needs and view-point of the "hospital class"? Can they visualise the hospital in the light of the health services of their locality as a whole? I submit that now that nearly all patients, private and non-private, contribute directly or indirectly to the income of the voluntary hospitals the public as well as the charitable donors should be represented in their local control Alternatively, small executive committees composed of people experienced in social administration, together with representatives of the local medical, nursing and other technical staff, might be substituted for the present boards of management

I am, Sir, yours faithfully,

London, W C 1, Dec 2 RESEARCH FELLOW

SIR,—As a humble member of the profession, unlikely ever to reach the exalted rank of consultant, I must congratulate you on publishing your plan for British hospitals The article demonstrates once again the enlightened and progressive viewpoint of your journal In the resulting correspondence a number of distinguished members of the profession have opposed the plan It would perhaps involve those of consultant standing in a certain diminution of income if they accepted whole-time service On the other hand, they would be freed from the anxieties and sacrifices associated with building up and maintaining a private practice, and would be recompensed by additional time for research and professional association

How would other groups in the profession fare? What of the thousands of recently qualified doctors whose future under existing conditions is extremely precarious? Their interests should also be considered The newly qualified man gets a meagre and inadequate pittance at the best of times, and the careers of many have been completely disorganised by the war A system such as your commissioner outlines would provide interesting, effective, secure and adequately paid employment It would give to many the opportunity of a specialist career without the necessity for possessing private means or influence, and would free them from the temptation of engaging in methods of practice inimical to the highest standards of professional behaviour

The success of the professorial units in London teaching hospitals provides a powerful argument in favour of your commissioner's plan The units certainly exerted the strongest influence and possessed the highest prestige at my hospital No-one would suggest that the directors of these units in any way fell short in ability, enthusiasm or as a source of inspiration to the younger generation As a further example of the advances which may be expected from unification of hospital practice one need only instance the work of the Medical Research Council, a body consisting mainly of whole-time workers which has achieved the highest reputation.

I am, Sir, yours faithfully,

London, S.E., Nov. 21. HOUSEMAN.

BLOODY TIMES

SIR,—Among the harsh cries of ennui and despair arising from our medical centres of frustration the voice of the pathologist has been absent. There is more to it than the fact that we are busy. For even the columns of the press have been opened to us by a legitimate financed publicity campaign. Pictures of "Grandmother donor of 70" in the press help to swell the public spirited queues that come to have their finger pricked (absolutely painlessly) and give such a social atmosphere to our dusty laboratories. Every town has made its own peculiar use of this large-scale blood offering, and the ease of withdrawal of a pint (no more), and the sudden enthusiasm for storing blood, has given a much needed sense of achievement to war preparations Since the onset of war much blood has been shed, and we are told that there has been great courtesy on the part of the doctor and almost perfect sangfroid on the part of the patient. It is therefore regrettable that this enthusiasm should be suffering a decline. There have, of course, been no air-raids and there are those who say that the best way of storing blood is in the human body They point out that this is a small industrial country with many large groups of day and night workers always available It would therefore not be difficult for a plain van to be dispatched to the first-aid room of a factory as soon as an air-raid occurred, and for it to return with a considerable quantity of blood perhaps before the surgical staff had formed a committee to decide the duties of the sorting officer. This would, moreover, be blood whose plasma had no rich supernatant of separated lipoids They say too that the factories are only too glad to cooperate in this way.

However, these objections to the present arrangements only take into consideration the short view. First, we are told, plasma is needed urgently for treating shock and such diseases as nephrosis. If the supply sometimes seems to exceed the demand, perhaps we may soon have an epidemic of nephrosis to even things up Then again there is the question of anti-measles serum, and we must be strict with mothers who prefer their children to have measles rather than serum. The *Daily Express* assures us that not a drop of the blood being given voluntarily is being wasted It is being turned over to the commercial firms for preparations of this nature. It will no doubt be retailed by them and thus help to keep the wheels of business turning.

Finally, there are associated with this question of blood-letting broader issues connected with the Recent Advances in Warfare. Even economic wars depend on the backing of the public. Both governments, uncertain of public approval of the war, are doing their best to minimise the physical inconveniences of it and yet provide the features which the public expects Pamphlet raids are alternated with drowning at sea. Our cities are in a satisfying state of emergency. The air force drives off hostile planes daily (they are usually described as big black planes, the significance of which any psychologist will recognise) and our young men have been provided with a spade and given uncomfortable quarters for the winter in the middle of a field. But to the pathologists is entrusted the most sacred tradition of war, that of bloodshed. It is obviously a great advance for each side to arrange this feature for itself. It is more humane, and it can be done in office hours Meanwhile, as long as the German High Command knows that we are calling for another 20,000 volunteers to be bled courteously at Slough, we can sleep undisturbed at nights.

I am, Sir, yours faithfully,

Sheffield, Nov 23. H. J. BARRIE.

HEREDITARY FAMILIAL PURPURA SIMPLEX

SIR,—Dr. Eli Davis's paper in your issue of Nov. 25 shows well that the combining of clinical and genetic investigations will help to disentangle the various conditions of hæmorrhagic diathesis. Earlier attempts to classify different types were not generally accepted, as they were based on "curiously inconsistent" (Witts[1]) findings, the significance of which it seemed difficult to assess. Progress seems only likely when more will be known about any possible differences in the mode of transmission and when the essential signs of each form will reveal themselves by their familial constancy.

An account of ten cases of the type described by Dr. Davis was given by R. Jürgens[2] in 1937. He named this form "type Jurgens" to distinguish it from Glanzmann's hereditary hæmorrhagic thrombasthenia, from von Willebrand's constitional thrombopathy (observed in Finland and in the Åland Islands), and from a group of Swiss cases reported by Naegeli. May I add the plea to discard the term "pseudohæmophilia"? It was proposed by Frank[3] for all those types of hæmorrhagic diathesis which differ from essential thrombopenia as described by him I believe it was Potain who said that there are no false diseases but only false diagnoses.

I am, Sir, yours faithfully,

Streatham Hill, S.W.2, Nov. 27. HERBERT LEVY.

RADIOTHERAPY IN SINUSITIS

SIR,—The review of my booklet, "Radiotherapy in Sinusitis," in your issue of Nov. 18 states that I am an enthusiast My conclusions were arrived at only after several years of experience of cases of chronic sinusitis and by a follow-up, so far as was possible, of all cases treated Good results achieved in cases which have undergone years of surgery and present themselves in consequence to the physiotherapeutist in a state of nasal neurasthenia have naturally made me enthusiastic I referred to certain contraindications to this treatment, but these your reviewer did not note. He criticises me for not referring to methods used by laryngologists Why should I, since practically all the patients who present themselves for treatment have had prolonged treatment by these *methods or/and operative* measures? No doubt your reviewer is aware of the fact that repeated sinus operations are a potential source of lifelong neurasthenia An alternative and successful method of treatment widely used in America and on the Continent presents itself. Physical methods of treatment are as yet scarcely appreciated in this country, and in this field of therapeutics we are lagging far behind.

I am convinced that *radiotherapy in sinusitis* has.

---

1. Witts, L J, *Guy's Hosp Rep* 1932, 82 465
2. Jürgens R, *Ergebn. inn Med Kinderheilk.*, 1937, 53, 795.
3. Frank E, *Ergebn ges Med.* 1922, 3, 171.

as a therapeutic measure, come to stay If my booklet can *stem the tide of sinus operations, especially* repeated sinus operations, it will not, in spite of its imperfections, have been written in vain

I am, Sir, yours faithfully,

W ANNANDALE TROUP

Wimpole Street, W 1, Nov 20

REDISTRIBUTION OF SURGEONS

SIR,—The war has been in progress for three months with fortunately few casualties, either military or civilian Is it not the time to review our medical arrangements? Excellent as they have been, both on the civilian and military side, there does appear to be one glaring error in the distribution of the medical personnel

Even before hostilities began it was clear to those who had followed the medical history of the war in Spain that an immense advantage to the wounded man is gained by treatment of his wound within three or four hours of its infliction This truth has been prominently thrust to the fore by the advocacy of Professor Trueta, so that at this juncture every surgeon is well aware of it In battle or after an air-raid large numbers of victims need surgical attention quickly The surgery they require is not of a very skilled technical variety, but it must be done speedily, and with discretion Owing to their long experience (and not perhaps their greater skill at all), their powers of rapid decision, their knowledge of what procedures are possible in the different regions of the body, and the rate at which they can work without effort or fatigue, senior general surgeons are eminently qualified to work in casualty clearing stations But we find in actual fact that there are many such valuable surgeons stationed in base hospitals where operating can be carried out at leisure and with all the accessory apparatus which makes it easier for the less experienced surgeon

I do make the strongest plea I can for the transference of all the long experienced general surgeons to the casualty clearing stations They alone are really fitted for the task of the first treatment There must exist centres where specialists, orthopædic surgeons, cephalic surgeons, thoracic surgeons or facial surgeons carry on their work, but such specialists are not so useful at the casualty clearing station A victim may sustain a fracture and an abdominal wound at the same time How would he fare in the hands of an orthopædic surgeon? or a purely abdominal surgeon for that matter? The general surgeon is surely the best fitted for this position Though the operations he will carry out may not be of an intricate nature, yet his judgment and speed which come from years of practice will be needed

The advantages of such a redistribution of surgeons both in the army and in the civil service would be immense The saving in the time of convalescence, in suffering, and in expense would be almost incalculable And the chance of restoration to a state of fitness for further military service or civil work would be greatly increased Is it *too* much to ask that this waste of invaluable surgical talent should be avoided before it is too late? I am, Sir, your faithfully,

CHARLES A PANNETT

Park Prewett Hospital, Basingstoke, Hampshire Dec 4

BRIGHTER BATTLE DRESS

SIR,—During the Crimean war the army was fitted out with tunics which replaced the "coatees" then worn, the idea being that the "skirted" tunic protected the abdomen and its contents during the rigours of a campaign The present-day dress reformers who have disguised our army so effectively in the so called *battle dress have reverted to the old sortie idea, though* they have not even left any coat tails! They have never, it seems, heard of the siege warfare of Sebastopol, nor of the Crimean winter It is said that they obtained their sartorial ideas from the ski-ing kits worn in winter sports resorts, and from the democratic dress of the Spanish Republican armies. At any rate they seem to have fallen into the error that anything unsightly and baggy is necessarily more practical than a decently cut uniform. In actual warfare sombre hues are needed but khaki is depressing Why not then a coloured forage cap with piping of the colour of regimental facing to lend a little cheerfulness to the "tout ensemble"?

I am, Sir, yours faithfully,

Gloucester Gate N W 1, Dec 1 RUSSELL STEELE.

EPANUTIN AND THE GUMS

SIR,—We draw your attention to a note with this heading on p 1105 of your issue of Nov 18 which refers to a number of papers concerned with trials of the anti-convulsant, sodium diphenylhydantoinate. The impression may be given by the heading of the note and by certain sentences in the content that Epanutin is the only preparation available of this drug, or that the papers quoted were solely concerned with the use of epanutin Neither of these impressions is correct a G L preparation of the drug has been available since July 1939, under the name Solantoin, and at least one of the papers to which your note refers was concerned with a trial in which solantoin was the preparation used

In drawing your attention to this point may we suggest that it would be helpful to the practitioner if the technical name of a drug or compound were given when the use of that drug or compound is being discussed For example, in the note to which we refer, the heading would allude only to sodium diphenylhydantoinate, whereas, at the appropriate points in the context, solantoin and/or epanutin would be mentioned by name, and perhaps even identified by maker We believe that the practitioner would appreciate this

We are, Sir, yours faithfully,

GLAXO LABORATORIES LIMITED

Greenford Middlesex, Dec 1

LORD HORDER AND PICTURE POST

SIR,—I shall be grateful if you will give space to the enclosed apology, which will appear in the next issue of a magazine called *Picture Post* The paragraph is self explanatory

I am, Sir, yours faithfully,

Harley Street, W 1, Dec. 4 HORDER

APOLOGY TO LORD HORDER

A private photograph of Lord Horder was published in our issue of Nov 27 without his knowledge or consent Lord Horder has further drawn our attention *to the incorrect description of himself as* "The King's Physician" and as having acted as physician to the late King George V We take this early opportunity of expressing our regret to Lord Horder for the inconvenience and annoyance that have been caused him

---

HARRY STEWART HUTCHISON PRIZE.—This prize is open to medical graduates of not more than ten years' standing It is awarded for the best writing embodying original research in a branch of medical science relating to children Further particulars will be found in our advertisement columns

OBITUARY

WILFRED BATTEN LEWIS TROTTER

M.D., M.S. LOND., F.R.C.S., F.R.S.

SERJEANT SURGEON TO THE KING

Mr. Wilfred Trotter died on Nov. 25 at the age of 67. He had spent nearly fifty years at University College, London, its medical school and hospital. Those who worked with him at these were fortunate in their contact with a great mind, apart altogether from his work as a surgeon For from the beginning of his connexion with the school to the end this bent, rather frail, figure could influence everyone, sometimes with a sidelong glance, sometimes with winged words, often by his mere presence And this influence was used always to further the best interests of the school to which he devoted his life But Trotter belonged to no section of the medical profession; all who have striven to think truly and to use their hands for the benefit of their fellows may claim a share in his memory. Within his lifetime he commanded the affectionate veneration generally reserved for the dead.

Russell, London

Wilfred Trotter came of sound west-country stock His father was a carpenter, so accurate and skilful with his hands that the son used to call his surgical craft clumsy in comparison. From his mother, a Lewis, he had his literary turn and the sensitiveness accompanying it. He had rare capacity, for his schooling in Gloucester was interrupted by spinal disease and it was not until his father's retirement to Willesden Green in his teens that he had any proper course of study. Sir Thomas Barlow had expressed a doubt if he would survive city life, but his success was uninterrupted from the time he entered University College with an exhibition in 1891 to his graduation in medicine at London University with honours in 1896. After qualification he held house-appointments on both medical and surgical sides and then went on to take all the higher surgical diplomas before becoming surgical registrar at U.C.H. in 1901, followed by the usual progress through the dissecting-room to the surgical staff At this time Horsley and Bradford helped to form his mind and Arthur Barker his technique, and his surgical career began with a period in which he set himself to solve a number of difficult surgical problems. malignant disease of the pharynx, injuries of the head, adjustment of thyroid function. His first paper on the surgery of the hypopharynx was read before the Medical Society of London. It lasted but ten minutes and when he finished there was a pause of silence; his audience were speechless because it had been so complete. A little later his Hunterian lectures on malignant disease of the upper respiratory and alimentary tracts laid down principles that lasted a generation During this time he shared rooms with Dr Ernest Jones whose sister, Elizabeth May, became his wife in 1910 After succeeding to the senior staff in 1914 on the retirement of Bilton Pollard he became the acknowledged teacher of general surgery, the embodiment of all that was best in surgical practice, without elaborate material and with little special equipment; yet his restoration of form and function was so perfect as to make it difficult for any to get the same results It has been well said of Trotter that his method was to do his own personal best for a few patients and this was the keynote of a private practice which became onerous to a degree at the time he was called in when King George V was gravely ill. Arrived at this peak of professional success, Trotter made a gesture which one of his colleagues described as almost unique in our profession. Instead of letting his private work interfere with his scrupulous performance of hospital duties he threw up his practice and henceforward limited himself exclusively to hospital work, surgical research and teaching On the retirement of C C Choyce in 1935 he took over the directorship of the surgical unit at U C H with the attached university chair of surgery.

For fifteen years Trotter was a member of the council of the Royal College of Surgeons; he served as vice-president and acted as president for a period of three months His deep interest in the affairs of the college lasted to the very end Even during the last year of his life, when suffering from much ill health, he presided over the many meetings of an important committee and wrote a masterly report on its conclusions His original approach to difficult problems, his quiet statement of opinion, the ordered sequence and logic of his arguments all carried great weight. His keen criticism, his cynical humour and gentle irony made him a dangerous opponent in debate, and yet they left no resentment, for his courteous manner and the kindly twinkle in his eye removed all possible cause of offence. While still a relatively junior member of the council, he was appointed Hunterian orater, and the choice was more than justified by an oration commemorating great men.

As a clinician Trotter could elicit much from his patients; his thin ascetic face would break into a smile and draw confessions which a brusquer manner would have suppressed His inquiries never took the aspect of a cross-examination This gentleness of speech was joined to a gentleness of touch, it was a lesson in itself to see his long fingers wheedling the physical signs out of the body, and still more instructive to have been the patient and have felt them In one of his addresses to students he insisted on this gentleness and recalled the patient who, on being asked if it hurt, said "Not yet, doctor" No patient would have had this expectation when Trotter was examining him Having elicited the facts his judgment as to their significance was outstanding, partly because of his retentive memory for all he had seen, but also on account of his critical ability. As an operating surgeon he used the experience he had gained as a demonstrator of anatomy, there was never any doubt as to what structures were displayed and it was an especial pleasure to see him working in the triangles of the neck. There was purpose in all his acts, and no matter how trivial the operation the same care was always used If the operation was going well his assistants would be stimulated or whipped by a flow of incisive comment Difficulties would be met by a more deliberate progress, when only an instructed onlooker became aware that they were recognised as difficulties No emergency deflected the gentle purposive movement of the fingers, Trotter's technique marked the final breakaway from the hurry and rough handling of the older school

Fine surgeon and skilled technician as he was, it was by his teaching that he exercised his greatest influence on succeeding generations of students He abhorred the conventional textbook and the uninspiring classification methods which lead to mediocrity instead, by emphasising fundamentals, and then opening up new vistas and showing new angles of approach, he taught students to develop their own powers of observation and of thought He had too the capacity of simplifying a problem and presenting it thus without sacrificing the truth The tale he told was linked reasonably together and was not a collection of seemingly disconnected facts His colleagues and assistants he taught by dropping hints of ideas which ran contrary to prevailing thought and it was always worth while on such occasions to persuade him to enlarge on the hint You could not be in his presence for five minutes without coming away with something that would stand you in good stead. An aural surgeon, for instance, said "The anatomical explanation that he gave me of his treatment of epistaxis caused me to change the whole of my approach to the treatment of inflammations of the middle-ear cleft A short walk with him of some two hundred yards caused me to go and reconsider all my views on the teaching of surgery"

As a colleague his advice was invaluable It was rarely offered spontaneously, but like all good things it had to be sought Then it would be given freely and without bias While perhaps in the ordinary wear and tear of conversation his criticism was destructive, when his opinion was seriously sought his help was always constructive and sound This capacity was seen at its best round the committee table, but in all discussions of policy his insistence on some general principle often disentangled the loose ends and spun them into a thread which led out of the maze of conflict One of his friends recalls "those enlightening communions with Trotter 'off stage,' whether in common room, refectory or laboratory, when he would talk to those who congregated round him on any and every subject that might arise No matter how commonplace or erudite it might be, he had always some original observations to make in that low, quiet voice of his or he would elucidate some new conception that stimulated his audience by the evident truth of it" His appreciation of the doubts and difficulties of daily life must have led many to go to him in times of trouble He always seemed to understand and he never shrank from giving a decision as to the course to be followed, fearlessly taking responsibility for his opinion His speech was not the almost unconscious bubbling of raw words of most of us, but the result of a conscious process He held that literary style was the product of much thought and polishing, and it must be assumed that this was true of his own writings, but his unprepared speech had the same aptness and polish

Trotter's untimely death has deprived the world of the original thoughts and new outlooks on life and the mind that had gradually been taking shape during his later years, but which failed to get transcribed to paper owing to his ill health Happily during his last illness he did find time to arrange some of the philosophical problems which had been burning in his mind, and the lecture which he gave to students at St Mary's Hospital institute of pathology on June 20 was an epitome of habits of thought with which his more intimate friends had long been familiar Its main theme was intellectual honesty We urge the young, he said, to think for themselves and we are inclined to be disappointed if they do not think like us, and he quoted with deadly effect Jane Austen's words, "Lady Bertram did not think deeply but, guided by Sir Thomas, she thought justly on all important points." All processes of reasoning, however abstract, are, he said, participated in and influenced by feeling There is probably no commoner error than that of supposing it to be possible by a direct effort to free the mind from preconception or prejudice The mind, Trotter concluded, likes a strange idea as little as the body likes a strange protein, and resists it with a similar energy We shall often find that we have begun to argue against the new idea even before it has been completely stated

From the University College Hospital Magazine

"Mr Anæsthetist, if the patient can keep awake, surely you can"

Mr Trotter is survived by his widow His only son is assistant to the medical unit at University College Hospital

Dr *Bernard Hart writes* Trotter's career was remarkable in that he achieved distinction in two very different spheres Not only has he been an outstanding figure in the surgery of his day, but he has also produced work which is a landmark in the development of modern surgery Throughout his life he was interested in the philosophical and psychological aspects of medicine, and this interest constantly appeared in his clinical teaching, and above all in his lectures which have been published from time to time The psychological fringe to his professional work gave him a breadth of outlook which was a constant joy to his friends and pupils, but in addition to this "applied psychology," as it may be called, he made important contributions to the field of psychology proper

His first, and indeed most fundamental, contribution to this field was contained in the two papers on "Herd Instinct" which were published in the *Sociological Review* of 1908–09 Herd instinct was of course already a familiar conception, but Trotter gave to it an entirely new significance He held that this instinct was responsible not merely for the occasional phenomena observed in crowds and other associations of human beings but that it determined to a large extent the behaviour and flow of thought of each individual, however isolated he might be In it was to be found an important source of the individual's "opinions, his credulities, his disbeliefs, and his weaknesses his altruisms, his charity, his enthusiasms, and his power" This thesis was worked out with striking ingenuity and with a wealth of erudition and illustration Moreover, these two papers are written with a command of language and a penetrating wit which makes them literally masterpieces. Humour is rarely a noteworthy feature in psychological articles and perhaps the only parallel in this respect to Trotter's writings is to be found in the book of William James. It is noteworthy that Trotter fundamentally felt that James was a kindred spirit, and quoted largely from his works.

Trotter's conception of herd instinct instantly aroused the interest of psychologists. Although the validity and limitation of the conception have been the subject of much dispute, it has played a great part in the development of psychology, and it may still be said without exaggeration that those two papers furnish an astonishingly illuminating understanding of the behaviour and vagaries of man. In 1915 the two papers were reprinted as the first two chapters of a book "Instincts of the Herd in Peace and War." The remaining chapters were devoted to an application to the problems of the Great War of the principles enunciated in the earlier papers, notably the differentiation of the factors underlying the contested behaviour and outlook of the British and German nations. Although it may be questioned whether an unbiased attitude sufficient for scientific validity is achievable during a war, the conclusions reached by Trotter were extraordinarily interesting, and the events of recent years have gone far to show that they were efficiently correct.

Trotter always hoped to carry his psychological researches further and his friends looked forward to this hope being fulfilled in the years of his retirement. Some indication of the direction in which his work would have led may be seen in the eloquent and refreshing letter which was published in the *Times* of Sept. 26, one of the finest indications of the strength and aim of Britain which has appeared during the war. This was, moreover, an excellent example of Trotter's wit: always mordant but never cynical, merciless of shams and shallow thinking, but always constructive and stimulating.

FREDERICK RICHARD BREEKS ATKINSON

M.D. EDIN.

Dr. Atkinson, who died suddenly of angina pectoris at Barons Court on Nov. 18 in his seventy-third year, was the second son of Arthur Johnstone Breeks Atkinson of the Indian Civil Service. He was educated at the King's School, Canterbury, and Edinburgh University, where he distinguished himself at rugby football and as a sprinter. On qualifying in 1891 he spent two years as ship's surgeon with the P. and O. company and made use of his contact with oriental diseases to write a thesis on beri-beri for his M.D. He then went into general practice, first at Dulwich and then at Chertsey, but he early devoted himself to the study of consumption, and was clinical assistant to the Hospital for Diseases of the Chest in Fitzroy Square. On the establishment of national health insurance he was appointed tuberculosis medical officer by the Middlesex county council. In this work the whole of the rest of his working life was spent. Atkinson wrote a good deal on medical topics. He translated several books for the New Sydenham Society. His chief work was his book on acromegaly, in which he tabulated and described over 1000 cases of this disease, and he also wrote a number of articles on the pituitary gland. He was a man of gently unassuming manners which made him staunch friends and no enemies. In later years his medical studies were also his recreation, though he was an adept at bridge. He leaves a widow and one daughter.

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

BY MEDICUS, M.P.

THE King's Speech at the opening of Parliament on Nov. 28 occupies only a little more than half a column in the official report which we all call "Hansard," and has reference only to the prosecution of the war. It has one particularly breezy sentence. "Throughout the world My Navies, together with the Merchant Navy and Fishing Fleets, are keeping free and open the highways of the sea." But the debate on the "humble Address" to be presented to His Majesty has covered a wide range of subjects and will last with last week and this week for a period of six days. It is this free discussion, and on occasion, criticism, which distinguishes our Parliament and which has so strongly moved Mr. Garrison Villard, the American editor, and of which he so wholeheartedly expresses his admiration after his visit to England during the last few days.

The motion opening discussions on the King's Speech is moved by men in ceremonial dress—court dress or uniform. In the past I have heard the address moved by men in knee-breeches, silk stockings with velvet coat and lace ruffles—what one might call the dress of Fauntleroy. On this occasion the address was moved by a sailor in uniform and seconded by a soldier in uniform, both of whom spoke wittily and effectively. Mr. Attlee, in opening for the Opposition, while agreeing on the urgent need for the prosecution of the war, said that "in the international sphere we have not merely to stop this aggressor, but we have to prevent any future aggressor." Because of this we must look beyond the immediate victory of our cause to the kind of world we want after the war is finished.

* * *

The speech broadcast by the Prime Minister, in which he drew a distinction between war aims and peace aims, was commented on in a friendly way by Mr. Attlee and has made a very good impression on Parliament. This speech was more vigorous than the P.M. always is and while it did not go so far in the direction of collective control as Mr. Attlee's speech in the House it was going in the same direction. Mr. Attlee suggested that a great extension of collectivism is essential, and urged that the control of transport and mining which is now enforced as a war measure should be put on a permanent basis. "Why not do it with a good heart and let us have a national transport service, unified and made ready as part of our new economic structure?" It may not be long before the same kind of question is asked about other national services. A nationalised dairy farming industry has been suggested in the pre-war days as a means of securing a larger milk supply and an improvement of child and adult nutrition. There are already mutterings in the lobbies of a national medical service but an ambitious scheme put forward for consideration by a group of Labour Party research workers was turned down as too theoretical and also as impracticable in war-time. What medical organisation will become after the war no-one knows. But it must not be allowed to become a kind of anonymous civil service. What is wanted is more doctors in local and national olitics and more of the sciences behind the medical rts in local and national affairs

* * *

The right of criticism was exercised on the second day of the new session when Mr Attlee proposed an amendment to the Government's proposal to take the whole of the time of Parliament for government business and cut out the times on which private members have been able to present bills These bills are often of great value and two which reached the statute book fairly recently—on night baking and on hire-purchase—were a valuable addition to our legislation which could not have come in any other way Of course the Government view prevailed by 213 votes to 115 The third day of the debate was prefaced by the Prime Minister's statement on the outbreak of war between Russia and Finland What this extension of the war presages no one can say—perhaps Mr Hore-Belisha had some such thought in mind when he accepted a gift of ambulances and said that they might serve on fronts at present unknown What the House feels is that the war may extend very widely That must be prevented if by any wisdom of statesmanship it can be done But in any case we carry on with the new session

FROM THE PRESS GALLERY

Lord Nuffield and Provincial Hospitals

In the course of the debate on the Address on Dec. 5, Mr **Elliot**, Minister of Health, announced that he had received that morning from Lord Nuffield the offer of one million ordinary share units of Morris Motors Ltd , equivalent to perhaps £1,250,000, as the nucleus of a central fund for the coordination of hospital finance and policy in the provinces

Medical Grading of Conscripts

In the House of Commons on Nov 22 Mr **Ernest Brown**, Minister of Labour and National Service, stated the grading by medical boards of conscripts aged 20–21 in different parts of the country He gave percentages only, adding, "It would not be in the public interest to state the actual numbers of men examined" (See table below)

QUESTION TIME

Fresh Medical Evidence

In reply to a question Mr **Brown** said that medical boards were directed to inquire into a man's previous medical history, and any medical certificate or other documents bearing on his case that he might bring with him to the examination received full consideration The National Service (Armed Forces) Act 1939 made no provision for appeals against decisions of medical boards If, however, fresh medical evidence was produced suggesting that a man had been wrongly graded, that evidence was placed before the chairman and, where necessary, the man was re examined.

Mr **McGovern** suggested that men had offered to place medical evidence of previous illnesses and diseases before the boards and had been refused —Mr **Brown** asked for evidence of that A number of cases had been brought to the notice of the chairmen of the boards, and full consideration given He did not think an appeal board necessary, but he would not close his mind to any suggestion

Women in Industry

Mr **David Adams** asked the Home Secretary whether, in view of the severe increase in infantile mortality during the last war, special observations were being made for the protection of the health of women in industry , and in what circumstances the Government's permission must be sought with regard to the working of overtime by women, and upon what principles this permission was granted —Sir **John Anderson** replied The War Cabinet committee on women in industry reported in 1919 that the influence of employment upon the infant mortality rate was not altogether clear, but observed that the rates were low in 1916 and 1917, when a continually increasing number of married women was being employed Special observation will however, be kept, in consultation with the Industrial Health Research Board, on the working conditions of women and others in factories during the war As regards women's hours of work, the hours which are being authorised while varying according to circumstances, are far shorter than those which were commonly worked in the last war and they are being kept under review

Additional Benefits

Mr **Rhys Davies** asked the Minister of Health why he decided upon schemes of additional benefits in the case of certain approved societies whose valuations took place on Dec 31, 1937, without giving the committees of management of valuation units the right to submit their own schemes to the Ministry for sanction in accordance with usual practice , whether he was aware that his decision was contrary to the practice which still held good in the Department of Health for Scotland , and if he would state whether his action was to be extended and on what statutory authority it was based —Mr **Elliot** replied Some modification of the normal procedure for dealing with approved societies' schemes of additional benefits has been made in the present exceptional circumstances with the object of saving work on the parts of societies themselves and of the seriously depleted staffs of my

EXAMINATIONS (PERCENTAGES) BY MEDICAL BOARDS DURING THE PERIOD JUNE 8 TO NOV 11 1939

Grade	Divisions												Overall
	London	South Eastern	Eastern	Southern	South Western	Midlands	North Midlands	North Eastern	North Western	Northern	Scotland	Wales	
	78·9	82·3	77·4	81·7	79·3	79·9	79·3	79·4	76·3	79·6	81·7	76·9	79·2
(a) (vision)	5·6	4·6	3·7	3·3	3·7	4·1	4·1	4·7	5·4	4·9	4·0	2·6	4·5
(a) (feet)	1·1	1·3	1·2	0·8	2·0	1·7	1·5	1·4	1·8	1·3	1·1	1·4	1·4
	3·9	3·4	6·7	3·7	4·5	4·7	5·1	3·7	5·5	3·0	4·1	7·1	4·4
al of II (a) and II	10·6	9·3	11·6	7·8	10·2	10·5	10·7	9·8	12·7	9·2	8·5	11·1	10·3
al of I II (a) and II	89·5	91·6	89·0	89·5	89·5	90·4	90·0	89·2	89·0	88·8	90·2	88·0	89·5
II	7·1	5·0	6·1	6·3	6·1	6·0	6·3	6·8	7·1	5·9	6·2	7·4	6·6
V	3·4	3·4	4·9	4·2	4·4	3·6	3·7	4·0	3·9	5·3	3·6	4·6	3·9

Grade II (a) (vision) relates to men placed in this grade solely on account of defects of visual acuity

Grade II (a) (feet) relates to men placed in this grade solely on account of deformities of the lower extremities department and of the Government actuary Under the new procedure a suitable scheme of benefits, as far as possible identical with that at present in force, is recommended to the society for adoption, but if in any particular case a society desires to submit alternative proposals, consideration is always given to any representations which *they may make* This procedure does not differ in any material respect from that adopted by the Department of Health for Scotland

Sampling of Rationed Food

Sir JOSEPH LAMB asked if the Minister was aware of the difficulty that would be experienced on the introduction of food rationing, and the consequent elimination of the element of surprise, by the officers of local authorities in their task of protecting, in accordance with the provisions of the Sale of Food (Weights and Measures) Act, 1926, and the Food and Drugs Act, 1938, purchasers against short weight or measure and adulteration ; and whether he was prepared either to make arrangements for such officers to be supplied with travellers' coupons, or to adopt some other method of enabling them to make test purchases of rationed articles of food —Mr ELLIOT replied . I appreciate the importance of this matter and am in communication with the Minister of Food with regard to the measures to be taken in order that sampling of rationed articles of food can be carried out for the purposes of the Food and Drugs Act, 1938 The Sale of Food (Weights and Measures) Act, 1926, is a matter for the Board of Trade with which I am also in communication

War-time Mortuaries

Mr. ROBERT MORRISON asked if the Minister was aware that many local authorities, acting upon the instructions of his department, were preparing to spend large sums of money in constructing new permanent buildings for use as war-time mortuaries ; and, in view of the need for economy, would he reconsider this instruction —Mr. ELLIOT replied It is the statutory duty of local authorities to provide mortuary accommodation for war emergencies Normally, this provision is made by the use of existing buildings, but suitable buildings are lacking in one or two areas I am looking into the question of accommodation at Tottenham.

Sir FRANCIS FREMANTLE . Will the Minister do everything to encourage the practice of cremation, which is obviously the reform that is nowadays often required ?

An Old Story

Mr GROVES asked the Minister whether the small pox cases infected by the Australian airman who died on arrival in England in March 1938 were notified as cases of smallpox —Mr. ELLIOT replied · Seven persons fell ill who had been in contact with this man Only one of these cases was sufficiently distinctive to warrant a diagnosis and notification as smallpox

The Case of Dr. Bode

Captain RAMSAY asked the Home Secretary whether he would inquire into the case of Dr Bode, a British subject but recently head of the German hospital in London, who was arrested on Sept 1 and kept for 25 days without trial in a verminous cell , and, in particular, why, after appearing before a tribunal on Sept 26 he was detained in prison for a further 41 days before being finally released —Sir JOHN ANDERSON replied Dr Bode is a British subject of German origin On the outbreak of war my predecessor in office made an order under the defence regulations for Dr. Bode's detention on security grounds The case was subsequently reviewed by the advisory committee and after considering their report, which was submitted on Oct 31, I came to the conclusion that Dr Bode might properly be released, subject, however, to compliance with an order requiring him to notify the police of his movements He was accordingly released on Nov 6 I am assured that the allegation that the cell in which he was detained was verminous is quite unfounded

The Minister added that the restrictions to which Dr. Bode was now subject were not such as would prevent him from resuming his services to the ordinary sick

PANEL AND CONTRACT PRACTICE

Difficulties over an Intermediate Certificate

A MINOR dispute between an insured person and her approved society led lately to an interesting analysis of the nature and effect of a medical certificate. The patient had been certified by the insurance practitioner to be incapable of work on Aug 1. The regional medical officer, examining her on Aug 6, came to the conclusion that she was then fit for work —an opinion in which the insurance practitioner concurred She claimed benefit for the intermediate period from Aug 2 to 6 The referee before whom the appeal came had to see if he could extract any guidance of a prospective kind out of the certificate of Aug. 1 or any of a retrospective kind out of the report of the 6th

The facts were unimportant. The woman was confined on May 25 After that period of incapacity she again declared on the society's funds on July 11 when six teeth were extracted. The insurance doctor who gave the first certificate on that date gave weekly intermediate certificates on July 18 and 25 and on Aug. 1 A sick visitor who saw the patient on July 15 found her in a nervous and run-down condition, with a sore and swollen face and in need of rest, but thought she should be fit for ordinary work in two weeks' time Another sick visitor, who saw her on July 28, thought her condition much better and advised examination by the regional medical officer, with the result already mentioned The approved society refused to pay benefit for any period after the last intermediate certificate The insurance doctor thought that payment up to the 6th would be justified He was invited to say that the patient's incapacity had continued till that date He refused to do so, because he had not seen her since the 1st; all he could say was that she was unfit on the 1st and that he accepted the statement that she was fit on the 6th The woman could thus produce no direct medical evidence as to the disputed period

The insurance doctor put forward the view that the report of a regional medical officer had the same effect as the final report of an insurance doctor. In other words the report of Aug. 6 would carry the interpretation that the patient remained incapable of work until that date. The referee observed that in practice the payment of benefit is often brought down to the date of the R M.O.'s examination on which the society proposes to stand. But, as the burden of proof rests on the member who is claiming benefit from the society, the referee rejected the view that the R M O's report was fully and formally the equivalent of an insurance doctor's final certificate.

If the insurance doctor seemed to have put the value of the report of Aug 6 too high, the approved society likewise overstated the effect of the certificate of Aug 1 A representative of the society contended that an intermediate certificate is always a document of exclusively retrospective virtue. The referee rejected this contention also In form, he agreed, intermediate certificates are statements that members have remained incapable of work up to the date of the certificate. But he thought it was wrong to say that such certificates could never have any prospective effect He found some analogy in the passage in the Medical Benefit Regulations which expressly allows the practitioner, when giving a final certificate, to certify that the member, though not fit to resume work immediately, will be fit "on a day not later than the third day after the date of the examination" The referee went on to say that in his opinion an intermediate certificate in the ordinary form ought to be regarded as prima facie effective for a period of a week ahead It should not, he thought, have this effect conclusively or absolutely, but, in the absence of clear and definite evidence to the contrary—and in the present case there was no such rebutting evidence earlier than the report of the 6th—the intermediate certificate should have this prospective value The referee therefore decided in the woman's favour and awarded benefit for the disputed period While the decision is not that of the High Court and must be regarded in relation to the relevant facts, the principle is one which might be significant in other than national health insurance cases The real point was, presumably, that on Aug 1 the insurance doctor found himself able only to give an intermediate certificate of continuing incapacity and not to give a final certificate of regained fitness for work The existence of a series of certificates of incapacity possibly shifts the burden of proof to the society which denies the incapacity But then what becomes of the onus which normally rests upon the claimant?

IN ENGLAND—NOW

(FROM OUR PERIPATETIC CORRESPONDENTS)

AN ambulance train is a complete army unit with a staff who live on the train, and differs entirely from what is termed a civilian evacuation train The latter is only used in an emergency is manned by a staff who live out, though within call, and is entirely under the Ministry of Health Ambulance trains are used to transport the sick and wounded who arrive at ports of disembarkation to prearranged hospitals These hospitals may be situated anywhere in England or Scotland, so the train run may be anything from 2 to 20 hours Commanding an ambulance train is like commanding a small hospital which may be enormously enlarged at short notice All the commanding officers are senior men who saw service in the last war, and it is really amazing how we have all settled down to a routine which we knew 20 years ago The personnel consists of the commanding officer, second officer, 2 Q A I M N S nurses, and 20 other ranks (R A M C) There are nine coaches in the train One of these is for officers and nurses, and is divided into sleeping and messing compartments with bath and lavatory accommodation, one is for the men, a third is for the cook, kitchen and stores, and a fourth has a dispensary and office and a large compartment for sitting officer patients The remaining coaches are furnished with cots, 36 to a coach, provided with mattresses, sheets and pillows These can be folded flat so that the coach is converted quickly into one for sitting cases

With the train at rest, training of the personnel is carried out daily, particularly with regard to stretcher carrying and loading, for constant practice develops the muscles required and time tests for loading show improvement each week Most of the personnel are trained St John's men, and are excellent at the job, but their somewhat elaborate technique of stretcher drill has to be replaced by much simpler and more expeditious methods On one occasion during the last war 4000 casualties were evacuated from a ship to 22 trains in ten hours so that a "top gear" performance in evacuation is essential A C O spends much of his time in checking stores and rations, for apart from feeding the staff one may have at short notice to provide meals for an additional 150 patients

When told that a carrier (hospital ship) is expected, with its time of arrival and number of patients to be evacuated, the O C train arranges his load into categories—special cases, including officers, nurses, infectious and mental cases, cot cases and sitting cases Additional stores are taken on board, and every member of the train personnel is detailed to exact duties The nurses prepare and air all beds Clerks are told off for checking and making nominal rolls of patients Water and lighting supplies are checked The 2nd M O is stationed in the coach to be first loaded, along with his loading squads and nurses The O C sorts out patients and ensures a steady supply to the leaders After many rehearsals the whole machinery moves smoothly and methodically The patients are brought from the carrier into a shed, where they are supplied with tea, biscuits and cigarettes by voluntary helpers, and sorted into categories Thence they are entrained During the train journey the patients are fed and medical attention provided My word, how those boys can eat! All look better when in the train, for the sea passage has been rough and few have felt like food on the carrier We are met at the end of our trip by willing helpers, with ambulances and buses to transport our "load" to hospital Our train returns to port, for cleaning, washing, scrubbing and making up stores and equipment There is a feeling of elation in the unit that our job has been carried out without a hitch—all patients on our roll accounted for, and no casualties en route

* * *

Now that "Lloyd George's time" (as opposed to the devout old lady's "the Lord's time") has ended, the onset of darkness somewhere about four o'clock has emphasised the great change that has come over our lives For all practical purposes, the last patient of the day must be seen at an hour which makes it possible for him to get home before the blackout, and classes and hospital work must be arranged so that students can do the same We leave our consulting rooms and arrive home for tea, with a long evening in front of us, and only something really urgent will induce us to turn out again, driving our cars in the dangerous darkness My general practitioner friends begin their evening surgery at 5 30 and go on till 7 o'clock or so, although panel patients do attend, and sometimes come late, most of the G P 's to whom I have spoken tell me that they are slack for the time of the year, and they too find themselves with unwonted time on their hands after they have finished Before the war there was much talk in certain quarters of "poverty in plenty," and I can recall broadcast talks from distinguished persons on the "problem of leisure," which would have to be solved when we had organised our resources properly Well, here it is—a leisure enforced by circumstances, something which we have not had for many a long year Hitherto we have left undone so many things that we ought to have done, and we have had many a "mood indigo" when we felt that thereby there is no health in us—books and journals unread, papers unwritten, time wasted with pot-boiling thrillers which we might have used for reading decent literature, friendships and personal contacts allowed to dry up and wither for lack of a little cultivation

To judge by conversations with my colleagues many of us have so far surprised ourselves with our capacity for "leaning backwards in a pensive dream" Sometimes we sits and thinks, and sometimes we just sits, and we, who for years have seldom been in bed before midnight, now look at the clock and yawn, and stretch ourselves, and put the dog out and turn into bed about ten or so, not grudgingly as though we were taking a dose of medicine but with a deep satisfaction akin to that of the little boy who finds a sixpence in the gutter and spends it lingeringly "The truth of the matter is" said Colleague A, "we're only just now realising how hard we have driven ourselves in our work." "The truth of the matter is," said Colleague B, "that it's

> 'a poor life this if, full of care,
> We have no time to stand and stare'"

These were seniors, successful men in their particular jobs, and they sounded wistful. Junior Colleague C, however, has started going to evening classes twice a week, to learn German so that he can speak it. "I like the language," he said, "and I've had several shots at trying to learn it on my own. Besides, it will be useful in the future to be able to talk fluently, at the end of the war" "Win or lose?" I asked, purposely misunderstanding him. He laughed. "Good heavens, it would be all the more important to be able to talk it if we *did* lose!"

Medical News

University of Cambridge

The following have been appointed additional examiners for the final M B examination, part I, December 1939:

Surgery Mr Geoffrey Keynes and Mr. R. H O B Robinson. *Midwifery* Mr Aubrey Goodwin and Mr. A. J. McNair.

The faculty board of medicine have withdrawn approval of courses in pharmacology held at institutions outside Cambridge, but students who on Oct 1, 1939, had gone out of residence without attending the course in Cambridge may make application to the secretary of the board for leave to attend courses given elsewhere

Royal College of Physicians of Edinburgh

The annual meeting of the college was held on St Andrew's day, when Dr. Alexander Goodall was re elected president and the following were elected to form the council for the ensuing year: Dr Edwin Bramwell, Prof. Charles McNeil, Dr A Fergus Hewat, Dr D. M. Lyon, Dr. W D. D Small and Dr. A. Graham Ritchie. Professor McNeil was nominated vice-president.

Royal Faculty of Physicians and Surgeons of Glasgow

At a meeting of the faculty held on Dec 4, with Dr. J. Souttar McKendrick, the president, in the chair, James Paton Orr Erskine (Glasgow) and Alexander Slessor (Motherwell) were admitted to the Fellowship

Chadwick Public Lectures

The trustees have now resolved to resume these lectures, and on Tuesday, Dec. 12, at 2 30 P.M., at 26, Portland Place, London, W 1, Sir William Savage will speak on the health aspects of canned foods.

The lectures for the spring programme will be announced in due course Further information may be had from the trust, at 204, Abbey House, London, S.W 1

Course in Psychological Medicine

Lectures and practical instruction for those preparing for a diploma in psychological medicine will be given at the Maudsley Hospital, London, S E 5 from January to May. Further information may be had from Prof S Nevin, hon. director of the medical school, Central Pathological Laboratory, at West Park Hospital, Epsom, Surrey.

British Institute of Philosophy

The fourth address of the special series of free public addresses, entitled "The deeper causes of the war and the issues involved," will be given by The Very Rev W. R. Matthews, dean of St Paul's, in the assembly hall (entrance in Craven Street, Strand) of the Royal Empire Society, at 2 P.M., on Thursday Dec. 14. The series will be continued in January and February, by Sir Richard Livingstone, Sir William Beveridge, Sir Richard Gregory, F.R S., and Prof Ernest Barker Further information may be had from the director of studies at University Hall, 14 Gordon Square, London, W C 1.

National Baby Welfare Council

The name of the National Baby Week Council has been changed to National Baby Welfare Council, to show the increased scope of work which falls to the council's lot under war conditions The address of the council is 20, Gordon Square, London, W.C 1.

A Maternity Home for Officers' Wives

The wives of many professional men who have sacrificed a large part of their income to take up a commission in one of the services would now find it impossible to pay the fees of the ordinary maternity home Yet except under exceptional circumstances they have no claim on accommodation in the military maternity hospitals To meet this need Mrs. Edward Baron has lent Fulmer Chase, a large house near Slough, for the duration of the war to be used as a maternity hospital for the wives of officers in the Royal Navy, the Army and the Royal Air Force It is hoped to open the hospital on Jan 15. It will have 28 beds, a labour ward, an isolation ward, a lounge and a dining-room A staff of consultants will visit the hospital several times weekly and there will be two resident medical officers The patients will pay on a moderate scale and according to their means, and the fee for which they are asked will be inclusive A number of gifts have already been received, including £150 a year to endow a bed Those of our readers who would like to help people who are helping us all should send their contributions to the hon. treasurer of the council of the hospital, Sir Comyns Berkeley. Other members of the council are Dr Frances Huxley, Dame Louise McIlroy, and Prof W. Fletcher Shaw. Further information may be had from the hon secretary, Miss L M. Brooks, at the London Office, 60, Portland Place, W.1

Births, Marriages and Deaths

BIRTHS

CLIVE.—On Nov 30, the wife of Dr F. Temple Clive, of Benenden, Kent—a daughter (stillborn)

DAY—On Nov. 30, at Cambridge, the wife of Captain P T L Day, R.A M C—a son

STARKIE—On Nov 30, at Creaton, Northants, the wife of Dr E T. W Starkie—a son.

STEPHENS—On Dec 4, at Ipswich, the wife of Dr T. W Stephens of Rhodesia—a daughter

TEARE—On Dec 2, at Umberleigh, Devon, the wife of Dr. R D Teare—a son

MARRIAGES

FIELDING—WEBSTER—On Nov 4, at Johannesburg South Africa, Surgeon Lieut.-Commander Vivian John Fielding, L R C P I, R N. retd, to Sylvia Inez Webster

MACLEAN—HARDAKER—On Dec 2, at Chelsea, Kenneth Smedley MacLean, M.B. of Elm Park Gardens, S W 10, to Joan Hardaker, of Bradford

REEKS—WILKINSON—On Dec 2, at Kingston, Dr John James Reeks to Brenda Wilkinson.

DEATHS

KEMPTHORNE—On Dec 4, at St Austell, Cornwall, Lieut Colonel Gerard Ainslie Kempthorne, D S O., M R C S., R A M C retd, aged 63

OLDHAM—On Nov 26, at Blackpool, Ralph Stransham Oldham, M.D. Dubl, O B E. principal medical officer to the Ministry of Pensions, aged 59

PHILLIPS—On Nov. 27, at Hengoed, Glam, Edward Lawrence Phillips, M.D Edin

THORNLEY—On Dec. 3, at Scarborough, John Hardwick Thornley, M.C, M.B Edin.

VISICK—On Dec. 3, at Brighton, Charles Hedley Clarence Visick, M R C S, aged 81

Appointments

MACDIARMID, A I. L, M B N Z, F.R C S E, resident surgical officer at the Royal Infirmary, Preston

MCKISSOCK, WYLIE, M S Lond, F R C S, hon surgeon to the Burden Neurological Institute, Bristol

WILWAY, F. W, M.S, M D Lond, F.R C S, hon surgeon to the Burden Neurological Institute, Bristol.

Medical Referee under the Workmen's Compensation Act, 1925: Dr. GEORGE GORDON-NAPIER for ophthalmic cases in the county-court districts of Doncaster, East Retford Mansfield, Newark, Nottingham, and Worksop (circuit No 18)

NOTES, COMMENTS AND ABSTRACTS

CUP OF TEA

AN illuminative episode of these early days of war has been the outcry provoked by the mere suggestion that tea might be pooled To pool petrol may have been an unfortunate necessity, to consider the "pooling" of dried fruits and margarine may have been justifiable, but the mere suspicion that tea might be treated in the same manner received such a reception that the Minister of Food hurriedly bowed before the storm The medical profession had in the past laid at the door of the all-prevailing social habit of tea-drinking the responsibility for many minor digestive ailments Does not tea contain tannin, and is not tannin a coagulator of protein? Therefore tea must coagulate protein So runs the argument But now Halpenny and MacDermott (*Canad med Ass J* November, 1939, p 149), using the appurtenances of the modern clinic and laboratory, even down to barium meals, basal metabolic rates and gastroscopy, have come to the comforting conclusion that good tea, brewed for five minutes, produces mild and pleasant stimulation, in no sense corresponding with the violent, unpleasant action of its main components, caffeine and tannin, when these are given separately or in combination They find that the effects of tea on gastric acidity and peptic activity are slight and variable and that it certainly does not increase acidity Nor does it alter the basal metabolic rate They also observe incidentally that chemical analysis cannot be depended on as a guide to the quality of a tea The tea-taster, they say, is still the supreme arbiter, and his judgment is practically infallible The price of a tea, it seems, is quite a reliable index of its quality, for the lower the price the more likely is the tea to produce unpleasant clinical effects Such a short term experiment as this (it lasted a month) may have little bearing on the effect of a life-time of tea-drinking, and the longest brew of tea used in these experiments (10 minutes) may have little relation to the brews usually consumed, but such objections will carry little weight with the vast majority of tea-drinkers who will feel that the teapot need no longer be hastily removed as the doctor enters Halpenny and MacDermott have earned their eternal gratitude

CHEMOTHERAPY OF TRACHOMA

SOME cases of trachoma have been improved by giving sulphanilamide in addition to local ocular therapy Lain[1] has observed a reduction of keratitis and pannus in thirty cases, and Kirk, McKelvie and Hussein[2] reported benefit in twenty five patients Harley, Brown and Herrell[3] treated eleven cases with sulphanilamide or allied compounds, and noted subjective and objective improvement in every one. Four of their eleven patients showed intolerance to sulphanilamide which necessitated a change to Neoprontosil They found that the best therapeutic response occurred in stages 2 and 3, and they say that trachoma probably falls into the group of diseases in which low or moderately low concentrations of sulphanilamide in the blood (3 mg per 100 c cm) are sufficient to give satisfactory results when maintained for about three weeks They recommend neoprontosil by mouth, because of its low toxicity, when a long course is necessary, and when sulphanilamide is not well tolerated, but the results with neoprontosil are apparently not so dramatic as with sulphanilamide Although the trachoma follicles do not disappear under such treatment, the conjunctival discharge clears up in four or five days, corneal ulcers heal and pannus is reduced Good results have also been reported with a combination of oral administration and intramuscular injections If these successes are confirmed, this will be one of the few advances made in the treatment of this tragic disorder since the days of the Pharaohs

GOITRE IN FINLAND

POOR Finland's goitre problems are so serious that it is strange they have attracted so little attention outside In *Nordisk Medicin* for Oct 14, Dr Johannes Wahlberg, who has been studying thyroid diseases in the country for the past 15 years, says that goitre is endemic in that part of the country which was continental at the end of the ice period when much of what is now Finland was ocean In three areas he found goitre in about 10 per cent of the young men liable to military service, and in his hospital material he found that women with goitre outnumber men in the ratio of 5 to 1 He finds both medicinal and radiological treatment slow and expensive, and advocates operation in most moderate and severe cases as being effective and cheap As for prophylaxis with small doses of iodine for children on the Swiss model, Dr Wahlberg is inclined to wait and see, for he is not yet convinced that the gigantic national experiment in Switzerland can yet be considered a proven success There is also the possibility of national differences in the way of idiosyncrasy to iodine, such idiosyncrasy is far from being a negligible factor in Finland

HOSPITAL DIETS

SHOULD public hospitals make any discrimination in their dietaries according to the social and financial status of their patients? Dr Erling Rustung of Oslo has issued a questionary to 136 hospitals, from 111 of which he has received replies (*Tidsskr norske Laegefor* Oct 1, 1939, p 1010) It transpired that 68 were strictly impartial with regard to accommodation and food, 6 provided the same dietary for all, but had one-bed wards for the patients who could pay for them, 29 provided for two classes of patients in accommodation and dietary, and there were 8 with three distinct menus graded according to their patients' purses Of the 68 with a uniform system of board and lodging, there were only 2 whose directors thought that two menus were desirable In one of these the statement was made that it would be economically impossible to give all the patients the better dietary, and that democratic principles must not be carried to such a pitch that residence in hospital remains a "grey" memory for those in a position to offer themselves a little extra happiness The opportunity afforded a hospital to swell its revenues by letting well-to-do patients pay extra for extra food was also mentioned But the consensus of opinion was voiced by one hospital director who wrote that after all feeding the patient is part of the treatment, and the grading of treatment in such a way that it is better for some than for others is an egregiously impossible notion

TYPHUS PROPHYLAXIS

IN a discussion of the problems to which malaria and typhus may give rise in Poland this autumn and winter Prof Heinrich Werner of Berlin (*Dtsch med Wschr* Sept 29, 1939, anticipates little trouble from malaria for many months to come In the prevention of typhus among the army of occupation he considers delousing less important than artificial immunisation Immunisation against typhus, he says, has made such progress since the last war that we are now very differently armed against this disease than we were in 1916–19 He gives an appreciative account of the active immunisation devised by Rudolf Weigl in Lemberg, and quotes Chodsko's experiences in inoculating 2800 persons in Poland with Weigl's vaccine. No serious complications resulted from three successive injections, and the effect was satisfactory Observations in North China, Egypt and Tunis on the action of this vaccine have also been encouraging Werner goes on to describe the system of preventive typhus inoculation associated with the name of G. Blanc. In 1938 Blanc claimed to have inoculated 1,200,000 people in Morocco against typhus with successful results. But the public health authorities in Poland considered the inoculation of a living vaccine too dangerous. Altogether 100,000 people in Poland are said to have been protected against typhus by Weigl's vaccine.

---

[1] Lain, R., *Geneesk Tijdschr Ned Ind* 1938, 78 1025

[2] Kirk R McKelvie A R and Hussein H A *Lancet*, 1938, 2 931

[3] Harley, R D Brown A E and Herrell W E *Proc Mayo Clin* 1939, 14 641

CROOKES' REVIEW.—The Crookes Laboratories of Gorst Road, Park Royal, N.W.10, have extended the monthly *Review* which they produced for their own staff into a *Digest* which will be issued three times a year, in November, February, and March, to all doctors who ask for it. The first number, for November–January, contains special articles on nutrition in war-time and transfusion solutions, an illustrated account of how the halibut is caught and a number of useful annotations

Messrs. CADBURY BROS. LTD., of Bournville, have once more sent us a collection of their chocolates suitable for Christmas presents. Things to eat, drink, or smoke have an ever popular Christmas appeal, and in the first group chocolates take pride of place. We have enjoyed Messrs. Cadbury's sample, and shall be glad of a further supply from any grateful reader.

WARNER'S DIARY.—The 1940 edition of the diary-calendar of medical history issued by William R. Warner and Co. Ltd., of Power Road, Chiswick, W.4, will be sent free of charge to doctors on request. This year no copies can be sent abroad

Vacancies

Ashton-under-Lyne District Infirmary—Res surg O and H S, at rate of £200 and £150 respectively
Barking Borough—Deputy M O H, £725
Bath, Royal United Hosp—Res H S's and H P's, each £150
Birmingham City Maternity and Child Welfare Dept—Temp M O, £10 a week
Bolton Royal Infirmary—Two H S's, each £150
Bristol City and County—Asst M O H, £500
Cardiff, King Edward VII Welsh National Memorial Assn—Two half-time asst tuber officers, each at rate of £250.
Chesterfield, Chesterfield and North Derbyshire Royal Hosp—Cas O and fracture H S, at rate of £225
Chichester, St Richards Hosp—Res Asst M.O, £350
Derby, Bretby Hall Orthopædic Hosp—Jun res asst M O, £350.
Doncaster Royal Infirmary—Res surg O., at rate of £250.
Durham County Council—Deputy county M O H, £960
Fulmer Chase, Bucks, Maternity Hosp for the Wives of Officers in Royal Navy, Army, and Royal Air Force—R M.O, £400
Glasgow University—Harry Stewart Hutchison Prize, £50
Gloucester, Gloucestershire Royal Infirmary, &c—H S, at rate of £150
Greenwich Metropolitan Borough—Tuberculosis officer for council's dispensary and deputy M O H, £750
Holt, Norfolk, Kelling Sanatorium—Jun res M O, £250
Hull Royal Infirmary—Cas O, at rate of £150
Kidderminster and District General Hosp—Sen H S, at rate of £150
Lancaster Royal Infirmary—Jun H S, at rate of £150
Lincoln County Hosp—Sen H S, at rate of £250
Manchester, Ancoats Hosp—Cas O, £150 Also clin asst for ear, nose, and throat dept
Manchester, Christie Hosp and Holt Radium Institute, Withington Locum tenens hon asst surgeon
Manchester, Crumpsall Hosp—Res asst M O, at rate of £250
Mansfield, Harlow Wood Orthopædic Hosp—H S, at rate of £200
Mexborough, Montagu Hosp—Res H.S at rate of £150
Middlesex County Council—Res cas M O for Central Middlesex County Hosp, at rate of £350
National Temperance Hosp, Hampstead Road, N W 1—Cas O, H P, and H S, each at rate of £100
North Riding C C—Asst Tub M O., £600
Queen Mary's Hosp for the East End, Stratford, E 15—H P, H S's, and cas O's, each at rate of £150
Queen's Hosp for Children, Hackney Road, E 2—Cas O at rate of £100
Royal Cancer Hosp, Fulham Road, S W 3—H S to radium dept, at rate of £100
Salvation Army—Jun Res M O at rate of £80
Sheffield Jessop Hosp for Women—H.S, at rate of £100
Sheffield Royal Hosp—Res H P £80
St Mark's Hosp for Cancer &c City Road, E C 1—Res surg O, £150
St Marylebone and Western General Dispensary, 18, Cosway Street, N W 1—Hon psychologist
Warwick, King Edward VII Memorial Sanatorium Hertford Hill—Jun asst M O, at rate of £250
Wolverhampton, Royal Hosp—Res anæsthetist: also H S to ear throat, and nose dept, at rate of £200 and £100 respectively
York County Hosp—H S, £150

The Chief Inspector of Factories announces a vacancy for an examining surgeon at Newport Mon

Medical Diary

Week beginning Dec. 11

ROYAL SOCIETY OF MEDICINE, 1, Wimpole Street, W.1

TUESDAY

Therapeutics and Pharmacology: 2.30 P.M, Dr C. A. Green Use of Convalescent Serum in the treatment of Acute Rheumatic Fever Dr. I H. Maclean. Prophylactic Vaccination against Whooping cough

WEDNESDAY

Comparative Medicine. 2 15 P M Dr G M. Findlay, Dr. J. R M Innes and Dr Dorothy Russell: Nervous Affections in Man and Animals

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.1.

FRIDAY—2 30 P.M., Dr R A. Young: The Pulmonary Circulation—Before and After Harvey (Harveian Oration)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W C 2

THURSDAY—3 30 P M, Sir James Walton: Surgery of the Common Bile-duct (Bradshaw lecture)

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.1.

MONDAY—4 30 P M., Dr. F J Nattrass and Dr. George Graham. Induced Pyrexia

SOUTH WEST LONDON MEDICAL SOCIETY

WEDNESDAY—3 P M (Bolingbroke Hospital, Wandsworth Common, S W.11), Dr Allen Piggot: Demonstration and History of Pathological Specimens

CHADWICK LECTURE.

TUESDAY—2 30 P M (26, Portland Place, W 1), Sir William Savage: The Health Aspects of Canned Foods

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY, 11, Chandos Street, W 1.

THURSDAY—2.30 P M, Dr H Crichton-Miller: Discipline and Leadership in the National Emergency.

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W.1

MONDAY to SATURDAY—Royal Cancer Hospital, S.W.3, daily, 9 30 A M (Saturday 11 A M), F R C S (final) course. Medical Society of London, 11, Chandos Street, W.1. Tuesday—4 30 P M, Mr R. J. McNeill Love Hernia Thursday—4.30 P.M., Mr. T. Meyrick Thomas: Intestinal Obstruction. Royal College of Surgeons, *Lincoln's Inn Fields*, W C.2 Tuesday and Wednesday—2 P M, F R C S pathology course Brompton Hospital, S W 3 Mondays and Wednesdays—4 30 P M, M R C.P. course in chest diseases

BRITISH POSTGRADUATE MEDICAL SCHOOL

DAILY
10 A M–4 P M., Medical clinics; surgical clinics and operations, obstetrical and gynæcological clinics and operations
1.30–2 P.M, Post mortem demonstration

TUESDAY
2 30 P M, Lord Horder: Ward clinic

WEDNESDAY
11 30 A M, Clinical-pathological conference (medical) 2 P M, Professor Dible The pathology of some bone diseases
3 P M Clinical-pathological conference (surgical)

THURSDAY
2–4 P M, Dr Duncan White: Radiological conference

FRIDAY
2 P M, Clinical-pathological conference (gynæcological)

MANCHESTER ROYAL INFIRMARY.

TUESDAY—3 30 P M, Prof. G. Jefferson Head and Spinal Injuries Mr. E Matthews Jaw Injuries
FRIDAY—3 30 P M, Prof J Morley Abdominal Injuries Mr A Graham Bryce. Chest Injuries

---

It is a most desirable practice to be careful to read a newspaper with which one tends to disagree. It is really sad to think of the number of people who set out deliberately to confirm their own prejudices That is not only stupid: though it is stupid It is really wicked Of course, it is no use reading the kind of paper that makes you angry with the other side. That confirms you just the same You need to read the kind that makes you feel uncomfortable at being the kind of fellow you are"—The ARCHBISHOP OF YORK speaking at Sheffield, reported in the *Manchester Guardian*, Dec 4

ADDRESSES AND ORIGINAL ARTICLES

SURGERY OF THE COMMON BILE-DUCT*

BY SIR JAMES WALTON, K.C.V.O., M.S. Lond., F.R.C.S., F.A.C.S.
SURGEON TO THE LONDON HOSPITAL

THE biliary tract is subject to many anatomical variations, several of which are of great surgical importance. The cystic artery may lie below or in front of the cystic duct or curve in front of the hepatic duct and, if accidentally cut, cause severe hæmorrhage, in the controlling of which the common bile duct or the hepatic duct may be tied (fig 1a). The main hepatic artery or its right branch may loop up *behind the gall bladder (fig 1b) and be divided in* mistake for the cystic artery, causing necrosis of the liver. Very rarely the cystic duct is absent, the hepatic duct or ducts opening into one side of the gall bladder and the common duct emerging on the other (fig 1c). Much more commonly the cystic duct is unusually long and even opens into the ampulla (fig 1d). If this is not recognised, stones in the common duct may easily be overlooked, and after cholecystectomy a portion of cystic duct may be left, which may dilate into a pouch containing stones, almost as large as the original gall bladder.

It is often in the seemingly easy case that danger arises, for a thin patient with a low, mobile and easily everted liver often has mobile ducts so that traction applied to Hartmann's pouch draws out a loop of the common duct (fig 1e) which is mistaken for the cystic duct and divided. This danger is greatly increased if the resection of the gall bladder is begun at the fundus, when the traction is greater and the deep field obscured by blood. The cystic duct (fig 1f) or a dilated Hartmann's pouch (fig 1g) may be so adherent to the common duct that the latter may be mistaken for the cystic duct and divided. So common are these variations that it should be an invariable rule that no structure in this region should be divided until all three ducts and the cystic artery have been identified (fig 3b).

Sometimes the duct has not been completely divided but the injury has led to a stricture and incomplete obstruction. All such strictures of the common duct are not, however, due to injury at a previous operation. It is often stated that a stone which has long been impacted in the common duct, and which may occasionally perforate it, may cause ulceration which in its later healing may stenose and obstruct the duct. In my experience this has been very rare. In my own series there were 20 cases of division, 6 traumatic strictures and 4 inflammatory strictures.

REPAIR OF LESIONS

These lesions, if recognised at the time, can generally be rectified by immediate end to end suture, but if they are unrecognised one of two conditions will follow. If the upper end of the duct is open, the bile escapes and does not pass into the intestine. Such patients may remain in fair health for a considerable time, and an operation for repair will usually be performed before their condition has seriously deteriorated. If, on the other hand, the duct has been ligatured, the patient rapidly becomes profoundly jaundiced, with complete absence of bile in the stools. Her health rapidly deteriorates, owing to back pressure on the liver, and at times the secretion of bile pigment may cease entirely, so that the distended duct is filled with a fluid like thin mucus, *the so called white bile*. Any operation on such a patient is a serious risk. The most hopeless examples are those in which the common duct has been divided below in mistake for the cystic duct, and, as the gall bladder is drawn out by traction, the two hepatic ducts are again divided high up in the hilum of the liver, into which they retract, so that at the second operation no trace of the duct can be found.

When there is a fistula or obstruction, the lower end of the duct is, as a rule, indiscernible, and the upper end of the duct has to be united with the duodenum, for the gall bladder has generally been removed, and a cholecystduodenostomy is therefore impossible. If the cut end of the duct can be easily approximated to the duodenum Mayo's direct implantation often suffices, but it is difficult to make a valvular opening, and there is a risk of ascending infection. A fistulous tract may be carefully separated from the abdominal wall, and

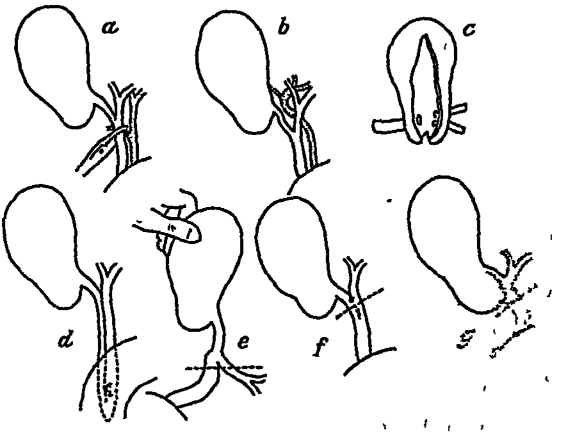


Fig 1—Anomalies possibly leading to lesions [illegible] artery lying below cystic duct has been accidentally [illegible] the hæmorrhage the common bile duct is [illegible] hepatic artery occupying normal position [illegible] absence of cystic duct, (d) long cystic duct [illegible] mobile loop of common duct drawn up [illegible] cystic duct adherent to hepatic duct, [illegible] common bile duct

---

* Bradshaw lecture for 1939 delivered before the Royal College of Surgeons on Dec 14 (abridged)

6068

its lower end may be implanted into the duodenum (Walters 1939), but this does not give a valvular opening, and the greater part of the new duct, not being lined by epithelium, is liable to cicatrise and stenose, leading to obstruction. When direct anastomosis is impossible, the Sullivan method of inserting a tube between the cut end of the duct and an opening in the duodenum and wrapping the tube in omentum can be used. Here again the internal fistula left between duct and duodenum is lined by omentum only and likely to stenose To overcome these dangers of subsequent stenosis and ascending cholangitis in the absence of a valvular opening into the duodenum, I devised an operation (fig. 2) whereby a new duct was made from a flap of duodenal wall, which was sutured round the tube inserted by the Sullivan method (Walton 1915). This ensured an epithelial lining for at least three-quarters of the circumference of the duct and allowed a valvular opening. If the liver has suffered badly from back pressure, much improvement may follow a slow decompression (Ravdin and Frazier 1937). The duct is opened, a long tube inserted and fixed, the wound closed, and the liver slowly decompressed. At a second operation performed about two weeks later the tube is cut off about 3 in. below the duct, an opening and flap made in the anterior wall of the duodenum, and the new duct reconstructed in the usual way In the almost hopeless cases in which no trace of the upper end of the duct can be found an incision may be made into the liver substance, and the resulting biliary fistula may be united to the duodenum.

CONGENITAL DIVERTICULUM

A congenital diverticulum of the common bile-duct consists of a very rare dilatation extending from the duodenum to the cystic duct or sometimes to the hepatic ducts (fig 3a). Its contents may amount to several pints, suggesting an ovarian cyst or even a pregnancy. The most constant symptom is attacks of severe colicky pain, often associated with jaundice The diverticulum has been known to rupture, the symptoms then resembling those of a perforated peptic ulcer Not only is the condition often overlooked on clinical examination, but also it may be missed at operation. The reason is probably that the gall-bladder is generally not dilated, and the diverticulum may be covered by membranous sheets. It cannot be too strongly emphasised that, if a patient has symptoms suggesting gall-stones, the common duct must always be examined. If this rule is followed, the diverticulum cannot be overlooked. If left, the condition appears to be always progressive and ultimately fatal owing to back pressure on the liver. A choledochoduodenostomy should always be performed

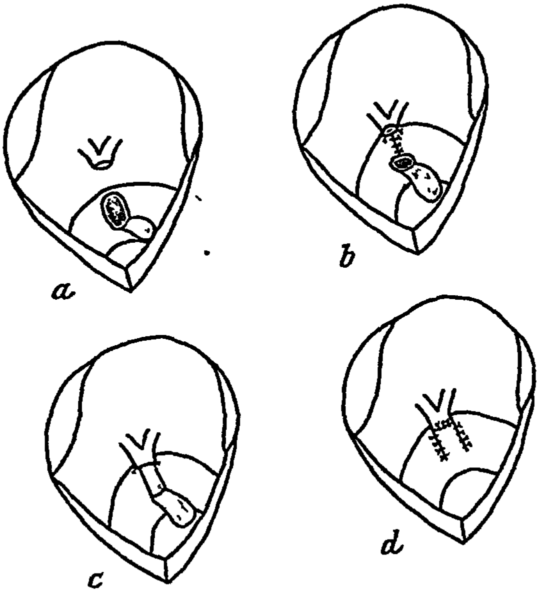


FIG 2—Reconstruction of common bile-duct · (*a*) opening made in duodenum and flap turned back, (*b*) suture of stump of common bile-duct to duodenum and closure of upper part of opening in duodenum with sutures; (*c*) insertion of tube to connect stump of common bile-duct with opening in duodenum, (*d*) suture of duodenal flap round tube

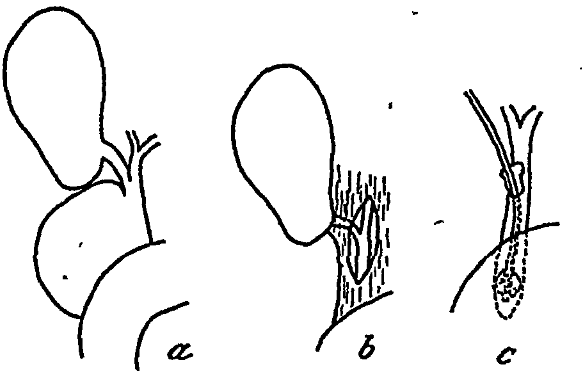


FIG 3—(*a*) Congenital diverticulum of common bile-duct, (*b*) exposure of all three ducts, (*c*) removal of stone through stump of cystic duct.

IMPACTED GALL-STONE

Of the acquired lesions of the common duct the commonest is the impaction of a gall-stone (table I).

Symptoms.—As a general rule, when a stone passes down the duct it causes attacks of severe colic, shortly followed by evidence of interruption in the flow of bile white stools, dark urine and jaundiced skin and conjunctivæ. The stone may then pass and the whole attack be over, but, even if the stone does not pass, the spasm of the duct may abate, the bile pass again, and a false sense of security arise Soon, however, the attacks are repeated, and, although the pain tends to become steadily less, the jaundice becomes more persistent, although the characteristic form of jaundice in this type of obstruction is variable or perhaps even definitely intermittent. The skin and conjunctivæ tend to remain bright orange, unlike the grey-green appearance in the late stages of the jaundice of a complete obstruction Although the obstruction is incomplete, the duct becomes dilated and perhaps infected, and the liver rapidly suffers from back pressure Although the ducts dilate, the gall-bladder is rarely distended from impaction of a stone in the common duct, probably because it is fibrosed from previous attacks of cholecystitis.

Jaundice—It is usually taught that an operation in the presence of jaundice is a serious proceeding, and that it is better to wait until the jaundice has disappeared This is entirely contrary to my experience. The risk in my cases has always been due to the back pressure on the liver, and, although the jaundice may vary, the damage from the back pressure steadily progresses as long as the obstruction remains The danger of hæmorrhage in the presence of jaundice has always seemed to me an academic myth, and I have found little or no value in preliminary calcium therapy The patient may be watched for a few days to see if the stone will pass, but, generally speaking, the presence of jaundice is an urgent indication for operation For this reason the diagnosis of obstructive jaundice from that due to a toxic or infective hepatitis is extremely important

The differential diagnosis is best made from the clinical history and by physical examination In my cases the van den Berg test has been of very little help Jaundice due to hepatitis usually has an insidious onset with no pain There is often a slight pyrexia during the first few days, or, if the jaundice is of toxic origin, there is evidence of gastro intestinal disturbance preceding the jaundice In the infective cases several persons living in the same house may have been affected, and there is no past history The jaundice may be complete or incomplete, and in the early stages the liver is usually enlarged and often tender In some cases of gall stone obstruction, however, colic is absent, but there is usually a past history of flatulent dyspepsia or of attacks suggesting cholecystitis, and there is often a tenderness over the gall bladder If the differential diagnosis cannot be nade, an operation should be undertaken if the aundice has not abated in six weeks So long a wait nay risk damage to the liver, but this risk may be ess than that of performing a useless operation on a patient dangerously ill with hepatitis With such a wait an organic obstruction is usually found at operation

A stone may be impacted in the common duct without causing jaundice, therefore absence of jaundice must never be regarded as evidence that the duct is clear If a stone is impacted, the duct above usually shows some dilatation and the cystic duct a relatively large lumen owing to the passage of a stone down it, but these changes may be relatively so slight that they are often overlooked If there is any doubt, the duct should always be palpated from without It has been said that even very small stones can be felt in this way by the trained finger, but often I have removed from the common duct stones which I had failed to palpate from without Therefore no operation on the gall bladder can be considered complete unless the common duct has been explored and the patency of its lumen made evident Such an exploration, however, may increase the danger of the operation If in such a case there has never been any jaundice, the cystic duct is small, the common duct is not dilated, and nothing can be felt from without, it may be considered that the risk of overlooking a stone in the duct is less than the risk to the patient of exploring it, and a simple cholecystectomy may be performed, but a note should then always be made that the duct was not explored, and the patient should be carefully watched after the operation

Recurrent stones —Some of the recurrent stones found in the common duct may have been formed therein after the first operation This possibility considerably affects the prognosis If there is a cholangitis and a stone is removed, another may form later, but if it is an overlooked stone, it is improbable that a second will escape notice A stone formed in the common duct in cholangitis consists of relatively soft pigment calcium and contains no cholesterin, whereas a stone formed in the gall bladder is laminated Of the 65 cases of recurrent calculi in my series only 9 of those in the common duct were pure pigment, the remainder being laminated stones Hence I believe that most of the recurrent stones in the common duct have been overlooked at the first operation, and that true recurrences are rare For this reason I have very little faith in the suggestion that the common duct should be washed out with ether Ether dissolves pure pigment calculi but has no effect on laminated calculi It is therefore better always to explore the duct and to dilate the ampulla to allow small fragments to pass

Operation —A free exposure must always be made I prefer the right paramedian incision If the back is slightly arched on the gall bladder rest, and the foot of the table slightly tilted downwards, good access, especially to the ducts, can always be obtained Occasionally a transverse incision of the whole thickness of the abdominal wall or of the posterior sheath only may be useful The Kocher incision I never employ I am aware that several very experienced and skilled surgeons advocate its use, but I have seen several large ventral herniæ after its use by other surgeons, and in other cases of recurrent calculi where this incision had been previously employed I have found the upper segment of the rectus atrophic, owing to division of its nerve supply

TABLE I—STONES IN COMMON BILE DUCT

Lesions of biliary tract	1192	Recurrent stones	65
Gall stones (all cases)	933	Gall bladder only	19
Stones in common duct		Gall bladder and duct 15	46
Primary, 151	197	Common duct only, 31	
Recurrent, 46			
With colic	173	Laminated stones in common duct, 37	46
With jaundice	158	Pigment stones in common duct, 9	
With white bile	6		

The intestines below having been packed off and the gall-bladder drawn upwards and outwards, the peritoneum of the edge of the gastrohepatic omentum is divided, and the ducts are carefully dissected Usually the three ducts—cystic, common hepatic and common bile—are easily identified, no structure whatever must be divided until all three have been identified The cystic duct is now divided and clamped, the cystic artery, identified and distinguished from a loop of the right hepatic artery, ligatured and divided The clamp is slipped from the lower end of the cystic duct, a dissector inserted down it and the duct slit up It is the usual custom to close the cystic duct and to explore the common duct through a separate incision As a rule the slitting up of the cystic duct is preferable Only one opening is made in the duct, and, when it is sutured, no stump can be left to form a new pouch like a gall bladder—a complication which I have seen in 3 cases The only condition in which a separate opening is necessary in the common duct is when the cystic duct is very long and opens into the ampulla When the cystic duct has been slit up, a pair of very fine forceps is passed downwards, any stone removed (fig 3c), and the forceps then passed through the papilla and opened as widely as possible, so as to dilate fully the opening of the duct Thus I regard as the complete operation which is desirable in every case and only to be shortened in those patients who are bad operative risks Since the routine use of this procedure I have not met with any symptoms due to spasm of the sphincter of Oddi In a few cases a stone may be so firmly impacted in the ampulla that it cannot be displaced upwards and withdrawn by forceps A transduodenal approach with incision of the papilla may then be necessary

The next question is that of drainage of the common duct The usual indications for this procedure are - (1) great dilatation of the common duct, (2) recurrent calculi, (3) soft pigment calculi, and (4) pus in the ducts If the forceps can be passed freely into the duodenum and dilated, many of these cases may be left without drainage. In other words, internal is substituted for external drainage, and I generally only drain externally a duct which contains purulent bile. For drainage I never use a T-tube; its withdrawal is likely to injure the duct, and its use is never necessary. If the bile is very infected, a smooth rubber tube should be inserted up towards the hilum of the liver. If the infection is less, the tube may be passed downwards towards the duodenum, in which case some bile may pass downwards alongside it. The tube should always be fixed in position with a fine intestinal catgut suture and the duct closed round it. It should not be withdrawn until the tenth day. The gall-bladder is now removed, the cut edges of the peritoneum of the gastrohepatic omentum sutured over the stump of the sutured cystic duct or round the tube, and the suturing continued upwards to unite the edges of the gall-bladder bed. Whether the common duct is drained or not, a tube should always be inserted down to Morison's pouch, for in some cases small accessory ducts open directly into the gall-bladder and may discharge a small quantity of bile. This tube can usually be removed in twenty-four to forty-eight hours.

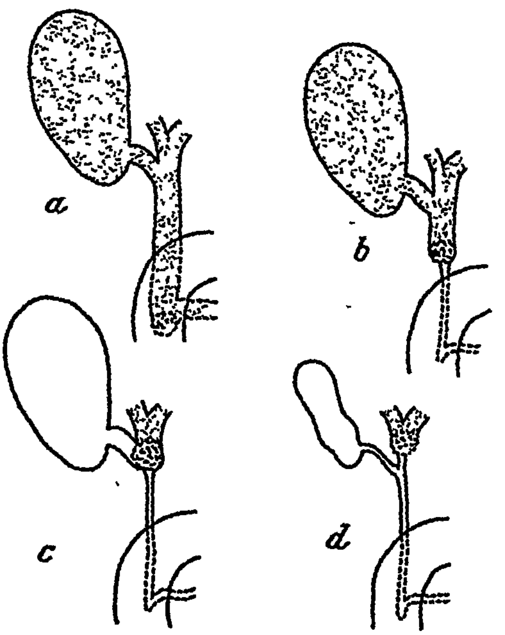


FIG. 4—Carcinoma of common bile-duct: (*a*) at the ampulla; (*b*) below the cystic duct; (*c*) at the junction of all three ducts; (*d*) above the cystic duct.

The results of operation (table II) show that the impaction of a stone within the common duct must always be regarded as a serious complication. Most of my fatal cases have had symptoms suggestive of liver failure, and it is for this reason that I advocate early operation before the hepatic damage has advanced to a severe degree.

TABLE II—RESULTS OF OPERATIONS ON GALL-STONES

Site	Cases	Deaths	Percentage
Gall-bladder	417	5	1·2
Common duct—			
Primary	151	20	13·2
Recurrent	46	7	15·2

CARCINOMA

Carcinoma of the common bile-duct may arise in any portion of the ducts, but is very rare in the cystic duct. The symptoms and methods of treatment vary with its position.

Sites and symptoms.—In the ampulla carcinoma may obstruct both the common bile-duct and the pancreatic duct (fig. 4a), so that absence of the external pancreatic secretion may cause recognisable changes in the stools; and the back pressure may cause so much injury to the gland that its internal secretions are also diminished. If the carcinoma is in the common duct below the entrance of the cystic duct (fig. 4b), the pancreas escapes, but in both situations the tumour simulates a neoplasm of the head of the pancreas. The gall-bladder and the ducts above the growth are considerably dilated, and the gall-bladder is filled with a thick concentrated bile, which has a tar-like consistency and may be so concentrated that on radiography it gives a direct shadow similar to that seen after administration of dye. If however, there has been a previous cholecystitis with stones this concentration does not take place. When the growth is at the junction of all three ducts (fig. 4c), there is the same clinical picture, with a dilated gall-bladder, but no bile can enter the gall-bladder, and the distension is due to the mucoid secretions of the walls of the gall-bladder. If the growth is above the cystic duct (fig. 4d), the gall-bladder is not distended, and generally in these cases the growth extends up to the hilum of the liver, so that no portion of the dilated hepatic ducts may be visible above the obstruction.

In many cases gall-stones are present (table III). In this event there may be a past history of the stones, but usually the onset of the disease is shown by jaundice, which is constant and progressive from the beginning with little or no pain. The urine is dark and heavily laden with bile, and the stools are completely free from bile. It is characteristic of a persistent jaundice of this type that after a time the bright orange and red of the jaundice are lost and replaced by a green or colour which becomes greyish; so that the jaundice may not only be thought to be diminishing but also overlooked, for the patient comes to have more the appearance of a half-caste than of a jaundiced person. This may be due to an alteration of the pigment in the tissues or to complete failure of the bile-forming function of the liver, the ducts and gall-bladder being found at operation to contain colourless and watery white bile.

Except when the growth is in the hepatic duct, the gall-bladder is distended and may be easily palpable, but although distended it may be placed so deeply beneath the liver that it cannot be felt, and in making a diagnosis greater reliance must be placed on the character of the jaundice than on the presence of a palpable gall-bladder. The liver is usually evenly and firmly enlarged, but is painless. The jaundice is generally apyrexial, but occasionally there is cholangitis, with rigors and a tender liver. The course of the disease is rapid, and the patient soon becomes emaciated, the appetite disappears, and later he may become comatose from failure of liver function. In the later stages life may be made miserable by intolerable itching.

Surgical treatment.—The common bile-duct is so closely related to other important structures, which early become involved in the growth, that a radical removal is seldom possible. Occasionally a papilloma-like growth in the ampulla may cause intermittent or complete obstruction before it has spread into the substance of the head of the pancreas, in which event it may be excised by a transduodenal resection, the dilated pancreatic duct and bile duct being cut across and then united together and to the divided posterior duodenal walls Sometimes a scirrhous growth in the common duct may be so localised that a resection followed by an end-to end suture is possible

In the remaining cases considerable relief may be gained by the performance of a short circuit This should be carried out wherever possible for thereby the great distress caused by the irritation of the skin may be overcome If the bladder is distended it may be anastomosed to the stomach or the duodenum If it contains thick bile, this is the procedure of choice, difficulty may, however, arise if its contents are only mucoid This may be due to failure of the liver function and to the presence of so called white bile or more commonly to obstruction of the cystic duct by a growth at the junction of all three ducts, in which event the only hope of relief lies in an anastomosis, usually a lateral reconstruction, between the dilated hepatic ducts and the duodenum The most disappointing cases are those in which the growth is in the hepatic ducts and extends so far up into the hilum of the liver that no dilated duct can be discovered above it Theoretically it might here be possible to establish a hepatic fistula, which could later be united to the intestine, but this procedure would occupy so much time that I have never considered it justifiable

TABLE III—CARCINOMA OF GALL BLADDER AND DUCTS

Site	Cases	Males		Females	
Gall bladder alone	21	5		16	
Gall bladder and ducts	12	3		9	
Ducts alone	33	11		22	
Gall bladder	21	11	With *stones*	—	With white bile
Ampulla	15	4		3	
Common duct	12	5		2	
Junction of ducts	12	2		1	
Hepatic ducts	6	1		—	

Operation	Cases	Deaths
Laparotomy	20	10
Anastomosis with gall bladder	11	4
" , common duct	7	3
Resection	4	1

Operation may be necessary in carcinoma of the head of the pancreas or in chronic pancreatitis, either of which may obstruct the common duct The diagnosis of these two conditions from one another is seldom certain at the time of operation The established symptoms may be identical, the appearances at operation are, in the absence *of secondary* deposits, very similar, and, even if a piece of the pancreas is removed for section a step which I do not consider justifiable, the growth may be missed A careful investigation of the past history, together with the surgical findings, will, however, nearly always allow of a correct diagnosis

REFERENCES

Ravdin I S, and Frazier, W D (1937) *Surg Gynec Obstet* 65 11
Walters W (1930) *Ibid*, 48 305
Walton J (1915) *Ibid* 21, 269
— (1921-22) *Brit J Surg* 9, 169
— (1923) *Proc R Soc Med* 17 24
— (1929) *Surg Gynec Obstet* 49 526
— (1930) The Surgical Dyspepsias 2nd ed, London
— (1939) *Brit J Surg* 27, 295

A CASE OF PARAPLEGIC BERIBERI

BY J BRUCE YOUNG, M D Edin, M R C P
ASSISTANT PHYSICIAN TO THE NATIONAL TEMPERANCE HOSPITAL, LONDON, PHYSICIAN TO THE CONNAUGHT HOSPITAL, WALTHAMSTOW

ROUTINE case taking should always include an inquiry into the patient's diet and the physician should never be satisfied with the patient's assurance that he takes "ordinary food" or just "whatever is going" In many such cases cross examination reveals that the diets are unsatisfactory, sometimes to a considerable degree Diets deficient in vitamin are particularly common in the following groups of people —

(1) The poor of industrial populations
(2) Those taking "special diets" for dyspepsia
(3) Lonely people—often elderly, sometimes poor, sometimes not, but always more or less friendless—who have no interest in what they eat or in whether they eat at all Some in this group fall into the next category
(4) Psychoneurotic and mildly psychotic subjects Patients in this group may choose extremely faulty diets with serious consequences to health, as in a case reported by me (Young 1938)

A further example of a strange diet and its effects seems to be of sufficient clinical interest to justify recording

CASE-RECORD

A married woman, aged 48, living near London, was referred to me on Oct 28, 1937, because of difficulty in using her hands, sensory disturbances in all the limbs, and unsteadiness of gait

Previous history—She was a 4-para First child stillborn Three other children healthy Always an active woman No illnesses other than infrequent attacks of bronchial asthma Menstrual periods stopped three years ago, menopausal symptoms being inconspicuous

Patient was always a small eater, but took an ordinary mixed diet up to 1922 She then developed a distaste for animal food and from this point stopped eating one thing after another, until by 1928 she was taking no bread, butter, meat, poultry, eggs, fish, cream or milk—except in tea At that time the diet consisted of biscuits, cheese, fruit of every kind in large quantities, uncooked vegetables, especially watercress and lettuce, chopped mint and vinegar, tea (the sole beverage taken) and chocolate, of which she ate large quantities

As the years passed, her appetite diminished further, and for five years before her illness she had been taking only one meal a day, composed of various fruits, uncooked vegetables, chocolate, and tea Still further reductions were made in the diet, and for a year before her illness the only food eaten was ¼ lb of milk-chocolate and 1 lb of grapes, this strange meal being consumed last thing at night By day nothing was taken except a few cups of tea (with a little milk) in the morning and afternoon In addition she permitted herself "one or two tomatoes about once or twice a week," and an egg beaten up in milk taken when she had a headache, about once a month

Meanwhile the patient led an energetic life, doing all her own housework and cooking the food for her husband and family, who ate normal meals Apart from her interest in household duties she was very keen on motoring, drove about a thousand miles a month, and cleaned the car every day

These activities, involving the expenditure of a considerable amount of energy, were unattended by undue fatigue, and she remained perfectly well until the end of June, 1937, when she had four teeth extracted, one being very difficult and involving two attempts at removal The operation tried her greatly, she came home feeling exhausted and suffering from headache and malaise

These symptoms did not pass off, and within a few days more striking symptoms were added. The hands, especially the right, became weak, and fine movements, such as doing up buttons or lifting small objects, became difficult or impossible. Sensory and vascular disturbances in the hands were troublesome, particularly a "bruised feeling in the thumbs." The fingers would go dead white at times, this change being unaccompanied by any feeling of cold.

Although the affection of the hands was so severe, no symptoms were experienced in the legs at this time, and the lower extremities were not affected till three weeks after the onset of symptoms in the hands. Then, a "stiff feeling in the thighs," weakness of the limbs, and unsteadiness on walking became associated with numbness and tingling, coldness of the feet, and swelling of the ankles. Soon, walking without support became impossible.

At this point—i.e., about a month after the first onset of symptoms—a remarkable and spontaneous change took place in the patient's appetite. She developed a craving for foods which she had not eaten for fifteen years, and she suddenly reverted to ordinary meals. There was a special desire for fish and butter, large quantities of the latter being eaten with hot scones; also eggs, green vegetables, and a good deal of milk. Bread was taken but stopped soon afterwards, for "it seemed to cause indigestion"; the hot scones and butter were continued, and the indigestion subsided!

Improvement took place as soon as the diet was increased; malaise, which had been much in evidence, now diminished, and twitching of limb muscles, previously severe, subsided.

When I saw the patient she had been taking the new diet for about two months, improving steadily in general condition and putting on weight. There were no symptoms other than headache, malaise, and those referable to the limbs. Constipation was present, but this was habitual. No dyspnœa was experienced at any time

Condition on examination.—A small thin woman, with an anxious expression. Gait very unsteady. Weight 6 st. 9 lb. Skin dry; complexion sallow; dark rings under eyes; no other pigmented areas. Conjunctival mucosæ well coloured. Upper teeth extracted; lower teeth good; gums healthy. Tongue, throat, and buccal mucosa normal Lungs healthy. Heart: apex-beat impalpable; rate 90; rhythm regular; sounds of good quality; no bruits. Blood-pressure 140/90. Abdominal examination negative.

Extremities: a firm œdema, pitting with difficulty, involved the dorsa of feet and ankles and extended symmetrically upwards over the tibiæ to midway between ankle and knee. The skin about the ankles was discoloured with a dusky erythema, and in this region a few dilated vessels, apparently in the deep layers of the skin, could be seen. There were no hæmorrhages. Bilateral foot-drop was present, with loss of sensation to pinprick and cotton-wool extending from toes to half way up the tibiæ. The right ankle-jerk was absent, the left very sluggish. Both knee-jerks were brisk. Gentle compression of the calf muscles was painful.

In the upper extremities all the tendon-reflexes were exaggerated. The hands showed considerable atrophy of the thenar eminences and "guttering" in the interosseous spaces. Sensory impairment extended from finger-tips to half way up the arms. No fibrillary twitching was seen in any of the limbs.

The abdominal reflexes were present, and the plantar responses flexor. Examination of cranial nerves was negative. There had been no sphincter disturbances.

The patient was admitted to the Insull wing, National Temperance Hospital, the following day. That night she had an attack of bronchial asthma, and the next morning a blood-count showed:—

Red cells .	5 110,000	Polymorphs ..	75%
White cells	7100	Lymphocytes	14·5%
Hæmoglobin	100%	Monocytes .	2·5%
		*Eosinophils..	7·5%
		Basophils	0·5%

* The eosinophilia was ascribed to the asthmatic attack

During a stay of three weeks her temperature was always subnormal and the urine free from albumin, sugar, and deposit. The respiration-rate averaged 20, the pulse-rate ranging between 80 and 96. Her weight increased by ½ lb. weekly for two weeks but in the third week dropped 2¼ lb., a fall attributed to "fretting" to go home.

In hospital the patient ate a full mixed diet and had no gastro-intestinal disturbance other than constipation. She took on a more healthy appearance and said she felt better every day. Symptoms were confined to the limbs, the chief complaints being of subjective sensory disturbances, such as "tight strings drawing the calf muscles" and "a feeling of numbness in the thumbs."

Clinical examination of the heart revealed no abnormality other than tachycardia (80–96). The blood-pressure varied between 110–120/80.

In bed the œdema diminished. After eight days it had disappeared from the front of the legs but not from the feet, which remained appreciably swollen on discharge. As noted above, the œdema was firm, pitting on pressure less readily than ordinary œdema of the feet associated with cardiac or renal failure.

After a few days in hospital the dilated vessels about the ankles were no longer in evidence and did not reappear, but other vascular phenomena were seen in the legs. At times the skin was of normal colour, but at other times, and more often, there was a dusky erythema localised to the ankles. Another symmetrical change of strictly local distribution was a sequel to the œdema over the tibiæ. When this œdema had subsided, the overlying skin appeared as a highly polished strip, ivory white, standing out in contrast to the surrounding skin, an effect which lasted about two days. On one occasion a bright red erythema affected both legs from knee to ankle for several hours. In the upper limbs and elsewhere in the body there were no signs of any circulatory disturbances.

Psychologically the patient seemed of fair intelligence but was abnormally shy and diffident. Throughout her married life she had never entertained nor gone out socially. As mentioned above, she worked very hard and was evidently obsessed with ideas of cleanliness and hygiene. Her husband said that she was a splendid car driver, her courage in this respect being in contrast to her fear of social contacts. She was inclined to occasional moods of depression and could be jealous, exacting, and headstrong, but was very devoted to her home life. It was an ordeal for her to be away from it, and her greatest wish was to be well enough to leave hospital. Her shyness was probably increased by self-reproach that her illness was the outcome of her eccentric tastes in food, and it was difficult to engage her in conversation. However, she professed to be unable to explain why she had cut down her food in the first instance, and the reason for her frugal dieting remained a problem in the realm of the psycho-analyst.

On discharge from hospital the general condition was much better, and the paræsthesiæ in the limbs had improved considerably. There were then signs of commencing restoration of motor function. Progress continued at home, and a month later the ataxia had practically passed off.

Subsequent progress.—When seen again four months after leaving hospital the patient walked well, in spite of weak dorsiflexion at the ankles, particularly the right, where the tendon-reflex remained absent. Elsewhere in the body all the tendon-reflexes were exaggerated. The hand grip was stronger, wasting of the interosseous muscles was less, and in all the limbs subjective and objective sensory disturbances were slight. She was less shy and was reported to be more cheerful and less "difficult" than for years past. The weight had increased by 14 lb. She had resumed her former activities in the home and was driving the car. There was no effort dyspnœa whatsoever, but towards evening the ankles became slightly swollen. Examination of the heart disclosed no abnormality, the rate was 80 and the blood-pressure 120/72.

A year later she reported again, at my request.

Shortly after the previous visit the ankles had ceased to swell On examination the right ankle-jerk was still absent, this foot was cold by comparison with the left, and the skin round the right ankle showed evidence of circulatory stasis No other physical signs were present, but the patient, although professing to be very well, did not look fit There had been recent loss in weight, and inquiry disclosed that her former eccentricities in diet were reasserting themselves She was now eating a light breakfast, after which she fasted till 7 P M, when another light meal was taken About midnight there was another repast of fruit and chocolate It was an unsatisfactory diet Obviously the patient should have been under continuous medical supervision, but since leaving hospital she had refused to see her doctor

DETAILS OF THE FORMER DIET

The daily menu had consisted of ½ lb of milk chocolate, 1 lb of grapes, and traces of milk (in tea) Occasional additions were a few tomatoes in the course of a week, and once a month an egg beaten up in milk The composition of the chocolate, a well-known brand, was —

Protein	8 0 per cent	Phosphorus (P_2O_5)	0 58 per cent
Fat	35 0 „ „	Calcium (as CaO)	0 30 „
Carbohydrates	53 0 „ „	Iron	8 5 per million
Mineral salts	2 0 „ „		

Energy value per lb   2015 calories

The vitamin content of the chocolate was said to be

Vitamin A	170 international units per oz
Vitamin B	14 „ „ „ „
Vitamin C	Present
Vitamin D	17 8 „ „ „ „

Grapes are composed of —

ater	77 4 per cent.	Carbohydrates	19 2 per cent.
rotein	1 3 „ „	Ash	0 5 „ „
at „	1 6 „ „		

Energy value per lb   435 calories

Grapes contain vitamin A, but their content of itamin C is negligible Vitamin B appears to be bsent or present only in traces Tomatoes are good ources of vitamins A B_1, and C Although consumed nly in small quantities, their protective influence in his diet would be of great value

DIAGNOSIS

Neither alcohol nor drugs had been taken, and the atient's condition of multiple neuritis could be scribed only to her diet This had the essentials of a beriberi producing diet (composition chiefly carbohydrate, vitamins very deficient, particularly vitamin B_1) and had been taken over a protracted period The association of such a diet with the clinical picture —multiple neuritis, combined with a firm œdema at the ankles and over the anterior aspects of the legs—suggests that the patient was suffering from the "dry" or paraplegic type of beriberi

Given a beriberi producing diet, onset of the disease is generally determined by hard muscular work or other circumstances that increase the metabolism, for this in turn demands additional supplies of vitamin B_1 In my patient the onset was clearly related to the extraction of teeth She was extraordinarily apprehensive, and during the period covering the extractions there was great emotional disturbance, No doubt this was associated with hyperthyroidism and increased metabolism Thereafter symptoms of beriberi developed rapidly

COMMENTS

The neuritis of beriberi is described as affecting first the legs, the arms being spared or only affected later My patient was an exception to this rule, her arms being affected for three weeks before the lower limbs became involved This unusual sequence could be ascribed to the unusual character of the patient's activities She went out every day, but not walking —always driving a car, the arms were used a great deal, not only for housework but also for the heavy work of cleaning the car Indeed the legs, by comparison with the arms, were subjected to relatively little muscular strain When, however, the legs became affected, the right foot suffered most, a result no doubt of the greater use made of this foot in driving a car

There were no cardiac symptoms and no clinical evidence of the "beriberi heart" The patient's tachycardia was regarded as symptomatic of her emotional instability, and the slight swelling of the ankles towards evening during the stage of recovery was no more than that often seen in convalescence after any debilitating illness Keefer (1930) has pointed out that the beriberi heart is seen in victims of the disease with little or no involvement of the nervous system He considers that the inaction enforced on patients suffering from "dry" beriberi protects the heart from sharing in the morbid process

The œdema of the legs conformed in type and distribution to that described as characterising beriberi Trophic disturbance of the skin over the tibiæ and circulatory stasis about the ankles were also noted, such effects are seen in many cases of peripheral neuritis and perhaps may be common in beriberi, but I have seen no reference to them in authoritative textbooks The deep dilated vessels about the ankles and the transient erythema of the legs suggest a link with "famine œdema," a disease regarded by some authorities as a special variety of beriberi and by others as a distinct but allied condition

In her liking for chocolate the patient had a bond in common with another case of beriberi described by Palmer (1939)

Although she had not eaten ordinary food for years, my patient's appetite was suddenly and spontaneously restored as soon as the disease affected her legs There was then a particular urge to eat butter This instinctive craving for fat is of interest in view of the opinion of Mellanby, quoted by McAlpine (1937), that in man the neuritic symptoms of beriberi result from a deficiency of vitamin A, whereas a deficiency of vitamin B_1 is responsible for central nervous manifestations, such as prostration Mellanby believes that cure of the polyneuritis is brought about by substances rich in vitamin A

TREATMENT

Before coming under my care the patient had been eating good meals for two months and had been improving In hospital she was given a diet containing fresh eggs, butter, milk, green vegetables, fruit, wholemeal bread, fish and meat Additional vitamin B was given as Bemax 1 oz and Marmite 1 drachm daily Halibut-liver oil was also given in doses of 5 drops thrice daily

At night splints were applied to the feet to counteract the foot drop, but by day the patient was encouraged to move the limbs gently Progress was very satisfactory

SUMMARY

A case is described of a middle aged eccentric woman who existed for months on a regimen of milk-chocolate and grapes On this frugal diet, augmented occasionally by tomatoes and an egg beaten up in milk, good health was for long maintained, and the patient led a very active life Ultimately symptoms of paraplegic beriberi supervened, the disease manifesting itself first in the upper extremities. There was no evidence at any time of involvement of the heart

Soon after the onset of the disease there was a spontaneous restoration of appetite for ordinary foods. *Treatment did not include the oral or parenteral exhibition of vitamin-B$_1$ concentrates, but progress was satisfactory*

REFERENCES

Keefer, C S. (1930) *Arch intern. Med.* 45, 1.
McAlpine, D. (1937) *Middx. Hosp J.* 37, 113
Palmer, H A (1939) *Lancet*, 1, 269
Young, J. Bruce (1938) *Ibid*, 1, 1385

PREVENTION OF FOOT DEFORMITIES IN CHILDREN*

By Margaret Emslie, M B Aberd.

ASSISTANT MEDICAL OFFICER, TODDLERS' INSPECTION CLINIC, BOROUGH OF WOOLWICH

In the fœtus at an early stage and in the newborn child the longitudinal and transverse arches of the foot are well formed, but the bones are only partly ossified. In a child aged 2 years the scaphoid and inner and middle cuneiform bones are still unossified—ossification does not begin in these bones until the third year for the middle cuneiform and the fourth year for the scaphoid and inner cuneiform (fig. 1) The keystone of the inner longitudinal arch is the inferior calcaneonavicular ligament, on which impinges the under surface of the talus, conveying weight from the tibia to the inner section of the foot. The entire inner mediotarsal section of the foot is therefore in young children composed of soft or at least pliable structures and, relatively to the outer section, ill adapted to bear strains. Morton (1935) has shown, on the other hand, that in standing the weight is equally distributed between the heel and the fore part of the foot, and that of the weight distributed to the fore part of the foot the great-toe section receives a third and the other toes two-thirds. In walking more weight is conveyed towards the inner section of the foot, and in running the first-toe section, being the last to leave the ground, receives the full brunt of the weight at one moment in the stride.

Integrity of the inner section of the foot is therefore essential to simple standing and walking without strain If the big toe is diverted from the correct position, it is unfavourably disposed for the reception of weight, and the head of the first metatarsal and the ligaments binding the metatarsophalangeal joint will have to bear a correspondingly greater strain. Weight proceeding from above, added to compression of the hallux by the side of the shoe, will tend to induce separation of the first and second metatarsal heads.

In taking an imprint of a child's foot it will be noted that in most cases the middle line of the foot drawn from heel to toes forms a curve Very often this is accentuated by, though not dependent on, the fact that in the young child the great toe may appear well separated from the rest, as if to take an inward curve of its own (This must not be confused with a varus deformity of the whole anterior foot) In such a foot not only will the anatomical axis of the foot curve slightly inwards, but also the functional weight-bearing axes of the foot will show an even greater tendency to curve inwards owing to the importance of the great toe in leverage movements in walking The leverage axis of the foot runs forwards to a point between the first and second toes (fig. 2) Ellis (1889) showed a typical adult imprint of barefoot Scottish people (fig. 3): in this the inward swing of the fore part of the foot is well marked

FOOT DEFORMITIES IN CHILDREN

Deformities of the feet, except certain congenital abnormalities, are not manifest in infants under a year old Examination of 281 toddlers (aged 2–4 years) inspected as a routine at the Woolwich Toddlers' Clinic between March and June, 1939, gave the following figures :—

	Per cent.
Deflection of the terminal phalanx of the great toe	80
Incipient valgus at the first metatarsophalangeal joint	11
Flexion of the interphalangeal joint of the great toe	10
Rotation of the hallux	24
Incipient hammer toe	13
Distortion of the middle toes . .	22
Ditto (with overlapping)	4·6
Incurved or incurled fourth and fifth toes	30
Flattened longitudinal arch .	10
Flattened metatarsal arch . ..	7
Ingrowing toe-nail	12
Other soft-tissue lesions	9

Few of the disabilities of the adult mentioned in Creer's (1938) analysis of 1000 cases referred from foot-clinics lack representation in this list, and the minor deformities of the outer digits, which Creer noted as concomitants of the major complexes, are already present in great variety. Apart from soft-tissue lesions, which become multiplied through wear and tear, the young child just walking appears to suffer substantially the same type of deformity as the adult (though not with pain)

Sex-incidence —At the age at which these examinations were made there was no sex differentiation in the incidence of deformities. Lake (1935) suggested that there is already a sex differentiation in schoolchildren, but I have not observed this in the earlier school years, when boys and girls still wear similar types of shoes. But within the school-age period a much more highly developed type of deformity than has been described in the toddling child is already evident (fig 4), though usually not characterised by pain That adolescent girls begin to suffer much more than boys of the same age from some of the secondary lesions of hallux valgus is beyond dispute Already at this age (apart from any question of heels) women's shoes retrogress in design. But those who blame the adult woman's shoe of today for the greater part of foot lesions would do well to examine how many males reach adolescence with wholly worthy feet, either from the point of view of æsthetics or of function.

Deflection of the terminal phalanx of the hallux, the most prevalent deformity (80 per cent) *discoverable in childhood*, is typical of the developed hallux valgus Examination of the true valgus from base to tip shows not only a deflection outwards of the axis of the hallux from that of the metatarsal but also a break in the axis of the hallux at the interphalangeal joint, with a further deflection outwards of the terminal phalanx (fig. 4) This is not to be confused with

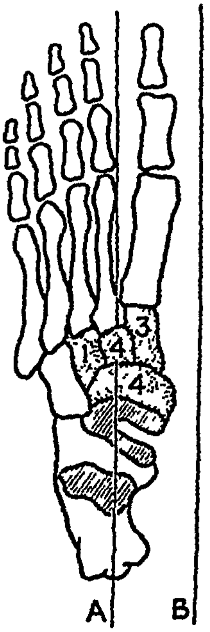


FIG 1—The last bones of the foot to ossify: ossification begins (1) in first year; (3) in third year. (4) during fourth year. A, leverage axis of foot; B, direction of progress. The gap (shaded) is bridged by the calcaneonavicular ligament.

---

* Based on a paper read to the maternity and child welfare section of the Society of Medical Officers of Health on June 23

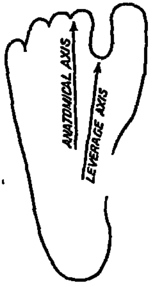


FIG 2—Footprint of child aged 10 months, showing separation of great toe and positions of anatomical and leverage axes

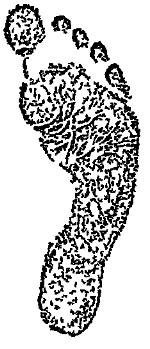


FIG 3—Adult footprint (after Ellis)

deformities of rotation and flexion also present in the established valgus and discovered also in some young children It is a true break in the longitudinal axis of the hallux, is slight compared with the deviation noticeable at the metatarsophalangeal joint in patients coming for treatment, and therefore often escapes notice although present

This deformity is not found in young children who have not worn shoes and walked It is never a deviation inwards—i e , an exaggeration of the natural trend of the toe in some young infants—but is always a deflection outwards of the terminal part of the toe noticeable along its inner border It is often accompanied by ingrowing of the great toe nail along its medial edge and by bruising or blistering of the soft tissues of the toe at the medial side of the tip No comparable deformity is found in the hand, though the pull of tendons on the end of the fingers roughly corresponds Nor could outward deviation of this phalanx only be produced by the body-weight, since this impinges on the toe along the metatarsal shaft in an inward, forward, and downward direction

The tendons attached to the terminal phalanx of the hallux are those of the extensor longus hallucis and flexor longus hallucis muscles on the dorsal and plantar surfaces respectively These pull in either case from a point situated external to the line of the first metatarsal shaft, the extensor tendon having an association on the dorsum of the foot with the extensor longus digitorum through the extensor brevis, and the flexor hallucis tendon passing diagonally outwards beneath the sustentaculum tali (where it crosses the flexor longus digitorum tendon going inwards to the tibia) towards its large muscular attachment to the fibular shaft The sustentaculum tali acts somewhat as a pulley in this case, lying intermediately both in distance and in position between origin and insertion of the muscles Between the base of the toe and their attachment to the terminal phalanx neither tendon is specially held down, whereas in the case of the outer toes the tendons of the flexor brevis muscle divide to bind down the longus tendons over the proximal phalanx

The flexor longus hallucis is constantly in action in an actively motile person, particularly in a child, since it serves to maintain balance at the substragaloid joint during raising of the heel If the distal attachment of this tendon were displaced (as by a deviation outwards of the terminal phalanx of the toe), use of the foot could only aggravate the deformity, since the tendon, slipped from its moorings, would constantly tend to drag the tip of the toe further and further out

On the dorsum of the foot the pull of the extensor longus (in running on tiptoe, with the toes dorsiflexed) would contribute its quota in the same sense Deflection of the terminal phalanx (once it occurred) must therefore rapidly be followed by deflection and subluxation of the proximal phalanx—hallux-valgus deformity Such a deformity once established, unless corrected at the interphalangeal joint, could only, with increasing use and strength of the foot, become progressive instead of self-correcting

An obvious cause for deflection of the terminal phalanx of the great toe in the child from its second year onwards would be a shoe designed without regard to the fact that in children the great toe is longer—i e , projects farther forwards—than its fellows and in many children diverges from its fellows, its inner border lying medial to the inner border of the foot This divergence (which must not be confused with a varus deformity) often exists and when present should be taken into consideration, because in all feet the integrity of function of the great toe is a prerequisite of proper walking Sometimes the great toe is a full half inch longer than the second or outer toes † The effect of a round-toed shoe on a child's great toe is depicted in fig 5 If the great toe is incurved instead of straight, the effect tends immediately to include the metatarsophalangeal besides the interphalangeal joint and is, therefore, aggravated If the shoe is short as well as round-toed, flexion of the great toe sometimes follows

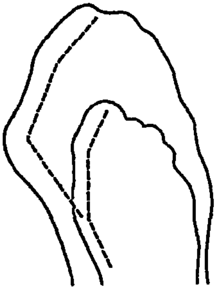


FIG 4—Outline of fore part of foot of a child, aged 5, superimposed on that of a child aged 14, showing axis of displaced hallux in each

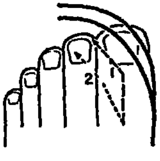


FIG 5—Effects of round toed shoes of different lengths (1) deviation of end phalanx of great toe, (2) deflection of both phalanges of great toe

Spreading of the metatarsal heads, not cited here separately as a deformity, is an element in several of the lesions I have quoted and in many cases of severe break down in adults If a shoe is well shaped in outline, suitably blocked, but short and, in proportion, broad, in the great majority of cases the great toe, being the longest, will be compressed end on Cramp of the muscles attached directly to the end phalanx (the extensor and flexor longus) immediately follows, and unnecessary width in the shoe allows separation of the first and second metatarsal heads Strain on the transverse metatarsal ligaments and adductor transversus hallucis muscle and stretching and compression of the plantar interossei must lead to collapse of the transverse metatarsal arch, the lesion that with hallux valgus distinguishes so many cases of foot-breakdown The longitudinal arch, anatomically and physiologically *conjoint* with the hallux, must be almost equally discomfited. A high proportion of children are found to wear too short shoes, often shorter than their feet (because a child's foot allows bending and warping within the shoe without pain) This is because children's shoes are built unnecessarily broad, especially at the heel. If a shoe is long enough, it is often (as shoes are made now) difficult to keep on because of the unnecessary width, and so the mothers have recourse to too short shoes.

---

† In 272 of the 291 children cited, the great toe was indubitably the longest of the foot sometimes overlapping the second by half an inch or more In 9 cases the second toe was longer than the first in 6 of which the third equalled the second in length In 4 cases the second toe was notably shorter than the first and third

If, however, the shoe is well shaped in outline but not blocked up, as in the common sandal and welted type, the effect on the foot is as follows. The child's foot being thicker than the adult's in proportion to its length, and the thickest part of the foot being always the inner section containing the first metatarsal and great toe, if a child's foot is placed in a non-blocked but welted shoe, the effect of the pull necessary to allow room for the thickness of the foot is to detract from the shoe's length and simultaneously to cause warping of the sole (if sufficiently flexible) The sole quickly becomes scaphoid and the inner and outer borders of the foot are removed from the ground, allowing descent of the middle metatarsals, a defect which is commonly described in foot disabilities of the adult. The foot cannot be used in the normal manner in such a shoe, and defects due to faulty distribution of weight are inevitable. Welting of the shoes, very often considerable in front but not carried back beyond the waist, adds to the evils of non-blocking, for it causes the child to walk at a further disadvantage with its toes turned out, bringing relatively extra weight to bear on the big toe, which is already removed from its proper base.

Other deformities associated with valgus displacement of the hallux.—When the terminal phalanx of the hallux is forced out it can do one of three things —

(1) Displace the second and adjacent toes bodily so that distortion of their axes becomes evident, the fourth and fifth becoming incurved or incurled—i.e., incurved and flexed—to compensate, for the shoe limits lateral displacement.

(2) Underlap the second toe so that this rises and becomes perched on top of the first and third toes (incipient hammer toe). Corns are seen on the summit of the interphalangeal joint even at this stage in some instances, but whether flexion becomes acute and the toe-pad eventually enlarged and hammer-like seems to depend largely on the length of the second toe relative to the first and third toes. If the second toe is short, it may remain elevated but unbent; if long, the tendency to flexion becomes aggravated, and the secondary lesions associated with hammer toe are set in train.

Hallux rigidus is due to a combination of hallux valgus with loss of dorsiflexion at the metatarso-phalangeal joint plus extension at the interphalangeal. The typical deformity appeared in 0 3 per cent of my group of cases as compared with 13 per cent. of incipient hammer toe. A long hallux displaced outwards, with accompanying spasm of the flexor longus hallucis muscle, might explain the initial situation here, independently of considerations involving the outer toes.

(3) Overlap the second toe—a much less common happening owing doubtless to the fact that shoes which displace the hallux because of shortness as well as roundness must often press also on the end of the second toe. To this pressure flexion of the second toe is the easiest response, so that only rarely does the hallux have the opportunity of overlapping the second toe, and then it could only do it by removing the greater part of its own weight-bearing surface from the ground. This embarrassment no foot will choose voluntarily. Children's shoes do not as a rule turn up at the toes, but shoes which do this encourage dorsiflexion of the hallux and automatically in the standing position place a greater burden on the metatarsal head.

The results of (1), (2), and (3) are seen in various typical pressure lesions which bring the patient to the chiropodist and (Creer's cases would indicate) in many instances to the orthopædic surgeon. But it takes years of discomfort and the buying and discarding of many pairs of shoes before most sufferers are brought under review. By that time not only is the original lesion well overlaid but also, owing to the number of secondary deformations that have taken place, may no longer be thought even relevant to the picture How much better to avoid the necessity for chiropody, resections, and perpetual extravagance in shoes by recognising in childhood the miniature displacements that lead to the greater if the causes go unheeded.

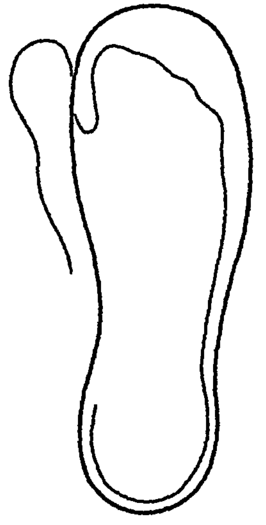


FIG. 6—Outline of child's shoe superimposed on outline of child's foot, showing that the shoe does not fit the foot

Flattening of the longitudinal arch.—The correctly shaped shoe obviously should follow accurately the anatomical axis of the foot. A shoe which is "straight" from heel to tip will not correspond to the normal child's foot, however carefully blocked to correspond with the child's toes and proportioned in length and width (fig 6). Children's shoes are commonly built not only on a straight axis but also on an axis which deviates outwards in the fore part of the shoe. This can best be illustrated by bringing a straight pencil forwards along the median axis of the heel and seeing how it meets the fore part If a child's foot—always soft and relatively non-resistant—is placed in a shoe with a straight axis, the whole fore part of the foot is pushed out of its correct functional bearings, the break coinciding with the waist of the shoe which corresponds to the mediotarsal section of the foot. This condition is comparable with that of a non-rigid bridge, forced out of the true just at its keystone. The body-weight coming down on the inner longitudinal arch is distributed to a part which is the weakest element in the young child's foot, the chief impact being on the inferior calcaneo-navicular ligament, the scaphoid, the bones directly in front, and the ligaments joining these. There is a tendency to "tear the foot apart" at this place. The muscles which share in sustaining the longitudinal arch are already, owing to the altered bearings of their attachments—e g., the flexor longus hallucis—working at a disadvantage This is what happens to a foot which, being curved or swung in of itself, is placed in a shoe of which the axis is straight or even deviated slightly outwards from the waist The infant foot is not built to resist such strains. There can be only one result, foot-breakdown

A child runs and trips happily on its toes most of the day when it can—i e , it tends much more often than the more sober adult to have its heels off the ground When the heel is raised off the ground, there is adduction at the midtarsal joints , the foot turns slightly in, the heels out This action can be observed from behind when a person rises on his toes ; the heels, together in the standing position, move out Now, if a child has a foot with a natural inward curve in the resting position, and this foot is forced into a "straight" or outwards deviating shoe, what happens to the foot in action ? The strain becomes aggravated because the child will (or should) be perpetually trying to run on its toes A stiff shoe with a wrong axis makes this impossible, and the child's movements are grossly impeded Hence what one might call the penguin like or Charlie Chaplin gait, contributed to always by stiffness of the shoe sole and typical of the way in which many children walk.

As a matter of further interest, this point may be carried to adult women If women will wear high heels, the foot should be perpetually in a position of adduction · the curve of the shoe should be inwards If women's shoes were made with this inward turn, high heels might not be so disastrous as they are sometimes made out to be , but the English shoe rarely takes this curve

Weak ankles —Stability within the shoe is at least as important as correct length and shape If the shoe is badly balanced in regard to front and heel widths,‡ either the fore part of the foot must be cramped or the heel must slip about and wobble, placing strain on the ankle and subastragaloid joints, a risk inherent in many of the first shoes made for children, in soft kid, which are parallel sided The ankle strap shoe contributes to wobbling, doing nothing to hold the foot and the *shoe together* The instep strap shoe and the lacing shoe keep the arched part of the foot and shoe in correct relation to each other and in contrast prevent any tendency to slipping Accurate fitting of the arch as such—i e , heel to ball fitting—is not so essential in children as in the adult, but the shoe must be flexible in its waist to allow the necessary movements at the midtarsal joints The need for freedom and strength of these joints has been seen , this cannot be secured by splinting The same applies to the use of boots versus shoes Boots splint, or attempt to splint, the subastragaloid joint, by means of which the leg rocks on the heel For this joint to be secure, the heel must not drift on the inner surface of the heel of the shoe (cf what has been said about heel fitting), but free use of the joint is essential for certain swaying movements and for the adapting of the foot in walking to uneven surfaces Freedom cannot be secured by disuse , therefore, except when lateral movements of the ankle are dangerous, boots are contra indicated

PREVENTION OF DEFORMITIES

The following are the essentials in shoe structure to avoid deformity —

(1) Correct shape corresponding to the outline of the child's foot (the anatomical disposition of the child's big toe being remembered)

(2) Correct length avoiding any pressure on the tip of the toes by the end of the shoe This means an allowance for clearance and room for growth

(3) Correct width corresponding to the actual width of the child's foot (which varies considerably) and maintaining the correct proportions in this respect between heel and toes

(4) Correct depth and blocking to allow for thickness of the child's foot

(5) Correct axis corresponding to the anatomical axis of the child's foot, or, if anything, allowing for an exaggeration of the natural inward trend to permit of the free adduction that takes place in tripping and running

(6) Flexibility of the sole to allow full use of all the intermediate joints of the foot

(7) A solid fastening to keep the foot firmly and squarely set within the shoe.

(8) Socks which in shape, length, and roominess correspond to the proportions of the child's foot (cf pairs made with right and left to correspond to the shape of the two feet, or the Japanese device of a separate compartment for the big toe)

Finally, in all cases and at all times, the use of shoes should be avoided in childhood whenever possible, to preserve the natural functions of the feet and to escape the traumata which ill chosen shoes can so easily produce and translate into visible deformities If children's feet could be preserved intact and made strong and worthy, much labour and suffering would be avoided in later life, and much added efficiency would be given to the nation, with the disappearance of these disabilities that keep the foot clinics multiplying and crowded out today

REFERENCES

Greer W S (1938) *Brit med J* 2, 5
Ellis, T S (1889) The Human Foot, London
Lake N C (1935) The Foot, London
Morton D J (1935) The Human Foot, New York

FRESH AND STORED PLACENTAL BLOOD

By J Halbrecht, M.D

(From the Beilinson Hospital, Petah Tiqva, Palestine)

The increased demand for blood for transfusions has led to the institution of blood banks Of the three sources of stored blood (donors cadavers, and placentas) this paper is concerned with the last

Placental blood is easily obtained and easily stored, no special organisation and apparatus being necessary A general hospital with a birth rate of 40 to 50 a month can thus usually supply its needs for blood for transfusions The simplicity of the methods described by Goodall et al (1938), Keller and Limpach (1938), and by Halbrecht (1939) enables any intelligent and well trained nurse or midwife to collect the blood of the placenta Only the determination of the blood-groups is the duty of the physician, to prevent any errors, especially in the subgroups A_2 and A_2B

Placental blood obtained and stored with strict asepsis is no more likely to be contaminated than is the fresh blood of donors

Butler records a bacteræmia in 5 per cent. of healthy adults—a condition unlikely in placental blood We found it unnecessary to culture every sample of placental blood, for it was stored at a temperature of 4° C , and so the growth of any possible contaminants was effectively inhibited Only those bloods should be discarded whose plasma is either cloudy or very hæmolytic, slight hæmolysis being unimportant

The pooling of bloods for a simple transfusion is an advantage, for it diminishes rather than increases the possibility of a reaction due to incompatibility A microtransfusion is less apt to cause a reaction than is a macrotransfusion, for the amount of possibly incompatible substances introduced is proportionally less A transfusion with pooled placental blood is equivalent to several simultaneous microtransfusions. In most of our transfusions we used bloods from five or six placentas, and once as many as thirteen, and in 220 such transfusions we never saw a severe reaction. *Dyspnœa was observed in 1 case and chills in 11.* In general we observed reactions in only 5 per cent of our transfusions, an incidence that can also be expected when fresh blood is used.

---

‡ The balance should be approximately as 2 or 1½ to 1

TABLE I—AMOUNTS OF ERYTHROCYTES, HÆMOGLOBIN, AND LEUCOCYTES IN FRESH PLACENTAL BLOOD

Erythrocytes (millions)	3–3·5	3·5–4	4–4·5	4·5–5	5–5·5	5·6–6	6–6·5	Total
Cases examined .	3	.	10	6	7	2	4	32
Hæmoglobin (per cent) .	80–90	90–100	100–110	110–115	115–120	.		
Cases examined	9	13	13	2	2	.	.	39
Leucocytes (thousands)	5–10	10–15	15–20	20–25	25–20	..	..	
Cases examined .	4	15	8	3	1	.	..	31

PROPERTIES OF FRESH PLACENTAL BLOOD

Placental blood has a greater concentration of blood components than has ordinary blood, although we find the figures for hæmoglobin and erythrocytes given by Russian authors, and cited by others, too high We found an average red-cell count of 4,500,000–5,000 000, often 4,000,000–4,500,000, and only rarely 6,000,000 per c mm of placental blood, with corresponding hæmoglobin values of usually 90–100 per cent. (17·2 g. hæmoglobin = 100 per cent) and rarely 110 per cent (see table I) The higher figures published by various authors (7,000,000 erythrocytes and 140 per cent. hæmoglobin) we have only found in newborn infants several hours after birth. The leucocyte-counts varied from 10,000 to 25,000 per c mm. Thrombocytes were normal, and there were many nucleated red cells. Blood-sugar values were similar to those found in adults. Non-protein nitrogen was almost normal, rarely being slightly increased. We often found high uric-acid values, whereas creatinine was usually normal (see table II) There were normal values for globulin, albumin, and fibrinogen. Thus the chemical composition of placental blood is similar to that of normal adults' blood For the purpose of transfusions, its only significant characteristic is its high hæmoglobin value, which is not nearly so high, however, as *various authors maintain*

TABLE II—AMOUNTS OF NON-PROTEIN NITROGEN AND URIC ACID IN FRESH PLACENTAL BLOOD

N P.N. .	20–30	30–40	40–50	50–60	Total
Cases ..	3	9	4	4	20
Uric acid (mg per 100 c cm) .	2–4	4–6	6–8	8–10	..
Cases	10	2	6	2	20

Although there are only a few references in the literature to the placental blood's content of anterior-pituitary hormones and œstrin, there is complete agreement that it is remarkably rich in these substances. Soule (1938) found amounts of œstrin in placental blood as high as in maternal blood during labour.

We often noted a prolonged coagulation-time in placental blood; and still more often we observed poor retraction of the clot. Prothrombin-time, determined by the bedside method of Smith, proved normal in fresh placental blood In stored adult blood Rhoads and Panzer (1939), using Quick's (1938) method, found prolongation of the prothrombin-time. It is likely that there is a similar prolongation of the prothrombin-time in stored placental blood; but we have not as yet investigated this.

Finally, placental blood has a characteristic that makes it especially suitable for transfusion—namely, the lack of agglutinins in about two-thirds of the cases. Placental blood of group O is therefore less likely to cause a reaction than is adult group O blood, for the likelihood that its plasma containing agglutinins of a high titre with the possibility of a resulting reaction is so much less Group O placental blood can be used, therefore, as a universal donor with less hesitation than adult blood of the same group

EFFECTS OF STORING

Leucocytes.—The greatest changes take place in the leucocytes, especially the granulocytes, which show beginning destruction at the end of twenty-four hours, the process being almost complete after the sixth or seventh day. Only rare granulocytes remain intact after the seventh day; all others appear as amorphous masses with no cell structure The early destruction of the polymorphs is probably a result of autolysis, due to the activity of proteolytic ferments which they contain. It cannot be prevented by any of the conservation methods recommended by various authors Lymphocytes, possessing no proteolytic ferments, remain almost unchanged up to the seventh day. Later the nucleus shrinks but shows no other changes The total number of white blood-cells diminishes accordingly up to the fifteenth day, when only 4000–5000 per c.mm. are found, all of them lymphocytes, there is also a decrease in the number of the thrombocytes to 50,000–100,000

TABLE III—AMOUNTS OF FREE HÆMOGLOBIN IN THE PLASMA LAYER OF THE STORED PLACENTAL BLOOD

Hb (mg. per 100 c cm)	0–34	34–68	68–102	102–136	136–170	170–340	Total cases
6th–7th day	6	2	.	..			8
7th–8th ,,	8	.	1	..	..	..	9
10th–11th ,,	10	1	.	1	.	2	14
12th–13th ,,	.	1	..	3	..	.	4
14th–15th ,,	2	2	3	..	1	..	8
16th–17th ,,	3	2	1	..	..	1	7

Erythrocytes —Usually no changes take place in the red cells for the first week, later the number of crab-apple-shaped cells increases from day to day. After the first week of storage rare pale erythrocytes begin to appear. From the fourth to the fifth day the fragility of the erythrocytes begins to increase; so after a fortnight we find hæmolysis beginning in a concentration of 0 68–0 7 NaCl This merely indicates a widening of the span of resistance to hypotonic solutions, for we find that, whereas some erythrocytes are hæmolysed in a concentration of 0 7 NaCl, the blood on the whole shows no increased fragility of the red cells, and that complete hæmolysis takes place only in the normal concentration of 0 38–0 4 NaCl

After only a few days of storing placental blood the plasma layer begins to take on a reddish tinge This appears to be due to the passage of hæmoglobin from the erythrocytes and not to their destruction, for there is but a slight diminution in their numbers Anyhow we are dealing here with only small amounts of hæmoglobin that pass from the lower erythrocytes layer to the upper plasma layer After fifteen days the plasma contains as a rule 0 2–1 per cent of hæmoglobin and but rarely 1–2 per cent (see table III) Bloods in whose plasma more than 2 per cent or 344 mg per 100 c cm of free hæmoglobin was present was suspected of being contaminated by bacteria and was not used for transfusions With some experience the hæmoglobin content of plasma can be estimated with the naked eye with sufficient accuracy for all practical purposes

Besides the free hæmoglobin present in the plasma, there are greater amounts in the lower erythrocytes layer, so that placental blood, mixed, filtered, and ready for use in transfusions contains a total of 3–5 per cent (516–860 mg per 100 c cm) of free hæmoglobin Nevertheless we have no reason to believe that any untoward reaction can have been produced by this free hæmoglobin, for we should then have had more reactions in transfusions with stored placental blood than with fresh blood, and this was not the case

Blood, to be a reliable therapeutic agent must fully possess its power to combine oxygen and we have found that storing does not affect this power in the least This can easily be demonstrated by thoroughly shaking the blood once, when it immediately becomes bright red Thus the chief physiological attribute of blood is not affected by storing

Catalase, and probably all other oxidising ferments of the blood, are released into the plasma with the destruction of the granulocytes and retain their full activity

There is a progressive diminution in the blood sugar as a result of glycolysis, reaching a low figure of 10–20 mg per 100 c cm on the fifteenth day of storing Non protein nitrogen, uric acid and creatinine, on the other hand, remain unchanged

The sedimentation rate, which is slow in placental blood (0–2 mm in the first hour and 4–6 mm in the second with the Westergren tube), is, if possible, still further retarded in stored blood

SUMMARY

(1) Placental blood, stored up to fifteen days, was used in 220 transfusions The results were no less favourable than with fresh adult blood used under similar conditions There were only 12 reactions, chills in 11 cases and dyspnœa and tachycardia in 1

(2) The only chemical change of importance due to storing the blood for a fortnight was glycolysis, increasing from day to day

(3) The chief change in the formed elements of the blood consisted in an almost complete disappearance of the granulocytes after the seventh day

(4) In general the erythrocytes were well preserved; some of them showed from the beginning of the second week changes in form due to shrinking (crab apple form) The chief physiological function of the erythrocytes, their power to combine oxygen, was preserved

(5) Slight hæmolysis appeared after several days of storing It was insignificant up to the tenth day and almost never amounted to more than 1 per cent (170 mg per 100 c cm) of free hæmoglobin in the plasma On the fifteenth day up to 5 per cent (710 mg per 100 c cm) of free hæmoglobin was sometimes found in the plasma In these quantities free hæmoglobin does not seem to produce any undesirable effect in the recipient

REFERENCES

Butler (1937) cited by Page et al *Lancet*, 1939, 1 355
Goodall J R, Andersen F O Altimas G T, and MacPhail, F L (1938) *Surg Gynec Obstet* 66, 176
Halbrecht J (1939) *Lancet*, 1, 202
Keller, R and Limpach, T (1938) *Rev franc Gynéc Obstét* 3, 37
Quick, A J (1938) *J Amer med Ass* 110 1658
Rhoads J F and Panzer, L M (1939) *Ibid* 112 309
Soule, S D (1938) *Amer J Obstet Gynec* 35 305

M & B 693 IN LYMPHOPATHIA VENEREUM

By K Vigors Earle, M D Lond, B Chir Camb
MEDICAL OFFICER UNITED BRITISH OILFIELDS OF TRINIDAD, TRINIDAD

Since the publication of the successful treatment of lymphopathia venereum (lymphogranuloma inguinale) with M & B 693 (Earle 1939), I have treated 23 more cases with the same drug The results have been uniformly successful, as shown by the following typical cases (10 of lymphogranuloma inguinale and 2 of rectal stenosis)

CASE RECORDS

Case 1—A negress, aged 25, seen on March 7, 1939, complained of pain in the rectum, constipation with passage of stools of narrow calibre, and frequency of micturition, beginning two months previously Nothing abnormal detected in the cardiovascular, pulmonary, and central nervous systems A well-marked rectal stricture, 3 cm above the anus, palpation of it produced considerable pain No lesion found in the genitalia, and no sign of adenitis in the groins Frei reaction positive No abnormal urinary constituents

Treatment and progress—She was given M & B 693, four 0 5 g tablets daily for five days, and liquid paraffin On March 14 she reported less rectal pain but continued frequency of micturition, examination of the stricture revealed far less pain and spasm than before A second course of M & B 693, similar to the first, was given On the 20th frequency of micturition had disappeared and rectal pain was negligible Constipation had been relieved, and the calibre of the stool had increased Rectal examination provoked very little pain and showed that the stricture, though still present, was of wider calibre and caused no spasm M & B 693, 2 g daily for five days, was given, and no relapse has been reported to date

Case 2.—A negress, aged 26, seen on March 9, 1939, complained of pain in left groin Examination showed a papillomatous mass arising from the left labium minus, an ulceration of the right labium majus, enlarged inguinal glands in the right groin, and a broken down gland mass, with sinuses, in the left groin Pain in the left hepatic area, and spleen enlarged. Blood films showed no malarial parasites Reenstierna test negative, and Wassermann and Frei reactions positive

Treatment and progress—On the 9th a course of M & B 693, four 0 5 g tablets daily for five days, was begun Seen again on the 15th the sinuses in the left groin were smaller, with less purulent exudate, the ulcer of the right labium minus was paler, less ready to bleed, and practically painless on palpation M & B 693, four 0 5 g tablets daily, was again given for five days On the 21st when the patient was seen the sinuses were scabbed over, the labial ulcer had healed, and the papillomatous mass of the labium minus was smaller, painless, and non-hæmorrhagic. The spleen was smaller. A further course of M. & B. 693, similar to those preceding, was given, but after this the patient could not be traced.

CASE 3.—A negress, aged 36, seen on March 22, 1939, gave a history of several months' constipation, with passage of flattened stools, mucus, and blood. Right cornea opaque, the result of an old syphilitic keratitis; there was an umbilical hernia, which had increased in size since force had had to be used to defæcate. Rectal examination showed a stricture, of rubber-like consistence, 4 cm. above the anus. Frei reaction positive. No pathological protozoa or helminths found in stools.

Treatment and progress.—On the 22nd a course of M. & B. 693, four tablets of 0·5 g. daily for five days, was begun. On the 29th the patient reported that defæcation was easier, and that less blood and mucus were passed. A second course of M. & B. 693 was given. After this, rectal examination showed a much softer stricture, of wider calibre. Mucus and blood were no longer passed. On April 14 examination showed a further improvement of the condition and a third course of M. & B. 693 was started. A tolerable condition of life is now being maintained by keeping the stools soft with liquid paraffin.

CASE 4.—A mixed creole male clerk, aged 20, seen on April 12, 1939, gave a four days' history of bilateral inguinal swelling. No lesions found in the cardiovascular, pulmonary, and central nervous systems. In each groin there was a bubo as large as a walnut, tender, but not attached to the skin. No primary sore discovered. Frei test positive. Reenstierna test negative.

Treatment and progress.—The patient was given five 0·5 g. tablets of M. & B. 693 daily for four days. On the 14th the buboes were smaller and on the 17th smaller still and painless. On the 24th the buboes were as small as a filbert and painless. A second course of M. & B. 693, four 0·5 g. tablets daily for five days, was followed by complete recovery.

CASE 5.—A negro rigman, aged 32, seen on March 24, 1939, complained of a three days' swelling in the right groin. No abnormality in cardiovascular, pulmonary, and central nervous systems. A bubo the size of a walnut in the right groin, unattached to the overlying skin. No primary lesion found. Frei test positive. Reenstierna test negative.

Treatment and progress.—The patient was given M. & B. 693, five 0·5 g. tablets daily for four days. He was not seen again until April 6, when he reported that he was better. No bubo was found on examination. He has been seen at fortnightly intervals since; there has been no recrudescence.

CASE 6.—A negro labourer, aged 24, seen on April 5, 1939, complained of a five days' swelling in the left groin. No lesions found in cardiovascular, pulmonary, and central nervous systems. A bubo, 1½ in. long, present in left groin, non-adherent to skin but painful on palpation.

Treatment and progress.—The patient was given M. & B. 693, four 0·5 g. tablets for five days. On the 11th the bubo was reduced to the size of a filbert and was painless on palpation. The patient complained that since taking M. & B. 693 he had suffered greatly from insomnia. He was given a second course of M. & B. 693, similar to the first, together with Nembutal gr. 1½ at bedtime. No relapse and no ill effects of the drug were observed.

CASE 7.—A negress, aged 17, seen on May 21, 1939, complained of pain and swelling in the left groin. Nothing abnormal found in cardiovascular, pulmonary, or central nervous system. Temperature 100·2° F and pulse-rate 68. A bubo, tender, soft and non-adherent to adjacent tissues in left groin. Frei reaction positive.

Treatment and progress.—The patient was given M. & B. 693, five 0·5 g. tablets daily for four days. On the 25th she complained of epigastric discomfort, which was held to be due to the drug. The bubo was smaller and harder but still painful. On the 30th the bubo was small and painless, and it finally disappeared after a further five-day course of M. & B. 693.

CASE 8.—A negro garden boy, aged 15, seen on May 31, 1939, complained of pain and swelling in the right groin. Apart from this no pathological conditions were discovered. The bubo was fluctuating, adherent to the overlying skin, and tender on palpation. Frei reaction positive.

Treatment and progress.—The patient was given M. & B. 693, five 0·5 g. tablets daily. On June 5 the bubo had decreased in size and was painless. The dosage of the drug was now reduced to four tablets daily, and on June 12 the bubo had disappeared.

CASE 9.—A male negro labourer, aged 28, seen on March 13, 1939, complained of pain and swelling in the left groin. Apart from a hard bubo adherent to skin and deep structures no other lesions were found. Frei reaction positive.

Treatment and progress.—The patient was given M. & B. 693, six 0·5 g. tablets daily, and on the 16th the bubo was smaller. Because the M. & B. 693 had caused epigastric discomfort and nausea, the dosage was reduced to four tablets daily. On the 23rd the bubo was fluctuating. Aspiration was refused. Dosage of four tablets daily was continued, but on the 29th the overlying skin ruptured (aided by energetic poulticing by the patient against my orders). The dosage of M. & B. 693 was now increased to five tablets daily, but healing was not completed until April 12.

CASE 10.—A negro rig-builder, aged 30, seen on March 24, 1939. A small, hard, non-adherent, and non-fluctuating bubo in right groin. Frei reaction positive. M. & B. 693, five 0·5 g. tablets daily, was given. Excellent progress was made, and the bubo had completely disappeared by April 6, 1939.

CASE 11.—A negro labourer, aged 25, seen on June 6, 1939. A hard painless non-adherent bubo, the size of a filbert in left groin. Frei reaction positive. M. & B. 693, five 0·5 g. tablets daily, was given. Improvement was rapid, and the patient began work again on June 13 but was given a further four days' supply of tablets as a precautionary measure.

CASE 12.—A male East Indian clerk, seen on April 24, 1939, complained of having had fever for two days, a bubo in the left groin for two days, and a sore on the penis for four days. Infecting coitus had taken place about ten days previously. Was puny and emaciated, with pallor of buccal and conjunctival mucosæ. No lesions found in cardiovascular, pulmonary, and central nervous systems. A small hard bubo, non-fluctuating and non-adherent, in left groin. A small herpetiform ulcer 3 mm. in diameter on foreskin. Blood films showed *Plasmodium vivax.* Frei reaction positive.

Treatment and progress.—M. & B. 693, five 0·5 g. tablets daily, was given. On the 28th the patient complained of extreme weakness and of epigastric discomfort. This was probably due to the drug. The bubo was already smaller, but the penile lesion showed no change. A course of Atebrin, 0·1 g. thrice daily, was started on this date. During the administration of atebrin (five days) the course of M. & B. 693 was suspended, but it was begun again on the completion of the course of atebrin. Cure was complete on May 10, 1939.

DISCUSSION

The value of sulphonamides in combating lymphopathia venereum in experimental animals has already been shown by MacCallum and Findlay (1938), Bär (1938), and Levaditi (1938a, b, c). Human infections have been successfully treated by Laird (1938), Gjurić (1938), Montel and Nguyen-Van-Tho (1938), Domagk (1937, 1938), and Kubitzki (1938). Successful results with M. & B. 693 have been recorded by Earle (1939a, b), Weissenbach and Temine (1939) and Durel, Linglin, and Desmazes (1938).

In the series described above it will be seen that most of the types of lymphopathia venereum have been treated, except gross elephantiasis of the vulva and rectal stricture in the male The absence of the latter is explained by the rarity of pedorasty in Trinidad (Patrick 1938)

The optimal therapeutic stage is during the early days of the inguinal adenitis (Earle 1939a, Manson Bahr 1939) When fistulæ have formed treatment is prolonged In the female the best results are obtained during the stage of adenitis, but even in later stages treatment is of value In cases 1 and 3 rectal stricture was favourably influenced a finding also reported by Shropshear (1938) and Knight and David (1939) The rubbery consistence of these strictures indicated that they were at an early stage (Stannus 1938) In the late sclerosed fibrotic stage, as well as in long standing cases with elephantiasis, the drug is probably of less value

A feature of treatment of lymphopathia venereum with M & B 693, which I have had no chance to study, but which is worthy of trial by those who have the opportunity, is the sterilisation of female carriers These often have no obvious clinical signs (Naumann 1931) but invariably show a positive Frei reaction (Gregorio 1932, Ferrer 1938) The treatment of inmates of brothels in tropical ports, who probably form an important focus for the maintenance of lymphopathia venereum, might be of value in reducing the incidence of infection in the male

The most satisfactory dosage of M & B 693 in this condition appears to be five to six 0 5 g tablets daily for five days Ill effects due to the drug do not necessarily call for a reduction in dosage, only when these are unpleasant—e g, vomiting and severe vertigo—should the dose be reduced After a five day course has been completed, an interval of three to four days should be allowed, after which a further course of M & B 693 can be given Further courses at intervals depending on the response can be given

The slower therapeutic response to M & B 693, when fistulæ have formed is explained by the drug's comparative inactivity towards "rough" secondary invaders (McIntosh and Whitby 1939)

SUMMARY

(1) The beneficial results of treatment with M & B 693, in five day courses of five to six 0 5 g tablets daily in 12 illustrative cases of lymphopathia venereum (2 of rectal stenosis in females and 10 of lymphogranuloma inguinale) are described

(2) The best results were obtained when treatment was begun in the stage of adenitis

(3) When fistulæ have been formed, cure with M & B 693 is slower, probably because it is less effective against "rough" secondarily infecting organisms

(4) It is suggested that the inmates of brothels should be prophylactically treated with M & B 693

REFERENCES

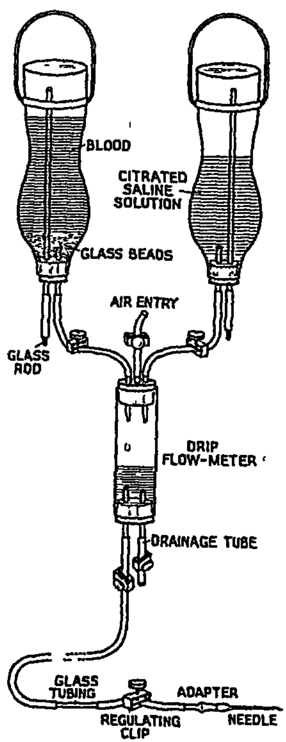
Bar F (1938) *Klin Wschr* 17 388
Domagk G (1937) *Z klin Med* 132, 775, abstracted in *Klin Wschr* 17 956
— (1938) *Derm Wschr* 17 797
Durel P Lingiln J and Desmazes F (1939) *Bull Soc franç Derm Syph* 46 31
Earle K V (1939a) *Lancet* 1 995
— (1939b) *Caribbean med J* 1, 310
Ferrer I (1939) *Vida nueva* 43 614
Gjurić N J (1938) *Munch med Wschr* 85, 33
Gregorio, F de (1932 and 1935) quoted by Pardo-Castello, V et al (1939) *Vida nueva* 43 465
Knight A A, and David, V C (1939) *J Amer med Ass* 112, 527
Kubitzki (1938) *Dtsch militärztl* 7 3 110

Continued at foot of next column

A DRIP FLOW-METER FOR TRANSFUSION

By S Roodhouse Gloyne, M D Leeds, D P H
and
Phyllis M Tookey Kerridge, Ph D Lond, M R C P
(From the Pathological Laboratory, St Margaret's Emergency Hospital, Epping, Essex)

The equipment supplied for the administration of blood in the London and Home Counties Emergency Blood Transfusion Service comprises glass bottles, with handles by which they can be inverted and suspended, and two holed rubber bungs to fit them Through the holes pass glass tubes one long enough to reach the bottom of the bottle and act as an air vent, and the other, which is short, attached to 3 ft of rubber tubing with a spring clip thereon Needles are provided for insertion into the vein of the patient and to be joined to the free end of the rubber tubing Glass beads are placed in the bottle to retain clots of blood



To start a transfusion with a small volume of a saline solution and to give blood at the rate of about 50 drops a minute, the rate being easily controlled and readily measured, the apparatus can be assembled as shown in the accompanying figure Two of the standard bottles and tubes are used one to contain citrated blood and glass beads, and the other a sterile citrate saline solution (sodium

---

DR. EARLE REFERENCES *(continued)*

Laird S M (1938) *Brit med J* 2 1043
Levaditi C (1938a) *C R Soc Biol Paris*, 227 955
— (1938b) *Ibid* 228, 139
— (1938c) *Pr méd* 60 1107
MacCallum, F O and Findlay G M (1938) *Lancet* 2, 136
McIntosh J and Whitby, L E H (1939) *Ibid*, 1, 431
Manson Bahr P (1939) cited *Ibid*, p 1142
Montel L R and Nguyen Van Tho (1938) *Bull Soc franç Derm Syph* 45 653
Naumann H E (1931) *Arch Schiffs- u Tropenhyg* 35, 181
Patrick E L L (1938) *Caribbean med J* 1 133
Shropshear H (1938) *Illinois med J* 74 153
Stannus H S (1938) The British Encyclopedia of Medical Practice London vol viii p 297
Weissenbach R J and Temine P (1939) *Pr méd* 61 731

citrate 1·05 per cent in sodium chloride 0·85 per cent.). *The long glass tubes of the bottle are closed*, before the transfusion begins, by rubber tubing and a glass-rod plug This arrangement prevents any fluid from entering the tube while it is being inserted into the bottle during the assembly of the apparatus. Although such fluid may be removed by pressure or suction, its presence is undesirable, because sometimes a film of fluid remains and forms alternately an obstructing drop or a film, as the air passes it, leading to an irregularity of blood-flow The short glass tubes are attached to a simple double-drip flow-meter made in the laboratory. This has been provided with both an air-entry tube and a drain Under perfect conditions neither of these should be necessary, but in practice the blood level often rises during a prolonged transfusion and obscures the drop The initial level can usually be restored by admitting air but sometimes more easily by draining a little of the fluid away With the air entry at the uppermost part of the vessel there is no risk of air entering the glass drip-tubes or making a froth, as sometimes happens with cannulæ with a lateral air entry. The drip flow-meter is inserted about 6 in. below the bottles This position ensures that it is kept vertical and allows the level of the fluids in the bottles and the rate of dropping to be assessed in the same glance This interval is large enough to allow the bottles to be shaken or to be easily exchanged when a fresh supply of blood is needed. The insertion of a short glass tube in the rubber tube below the flow-meter makes it possible to see when the fluid has reached the end of the tube and that there are no bubbles The metal adapter (see figure) renders it much easier to fit the rubber tubing on to a needle in a vein without leak or jerk.

We thank our colleagues Dr. W. L Yell, medical superintendent, Mr. Mortimer Woolf and Mr. P. Wright, surgeons to the hospital, and Mr. Brendon Moore and Mr. O. W. Chapman, house-surgeons, for their help in discussion and criticism.

REVIEWS AND NOTICES OF BOOKS

Diet in Health and Disease

Edited by SIR HUMPHRY ROLLESTON, Bt, G.C.V.O., K.C.B., M.D. Camb., F.R.C.P., and ALAN A. MONCRIEFF, M.D. Lond, F.R.C.P. London. Eyre and Spottiswoode for the *Practitioner*. 1939. Pp. 382. 14s.

THIS is the fourth of the series of the *Practitioner* handbooks and consists of articles on diet which have appeared in the columns of that journal, revised and brought up to date. Most of the articles are by specialists who treat dietetically various disorders of the body, but the theoretical and practising dietitian and the biochemist also have their say Despite the fact that much of dietetics in medicine is, and must be for the present, empirical, there is considerable concinnity between the different authors. The advice of the empiricists lacks the precision of the biochemist, but often has more of a dogmatic quality. Of special interest are the articles on diet of childhood, breast and artificial feeding of infants, and diet in pregnancy The only serious omission is an article on diet in relation to bones and teeth

There has long been a need for a book by reputable authors describing the theory and practice of medical dietetics in this country, and this handbook fills the need well.

Life and Living

BY FREDERIC WOOD JONES, D Sc. Lond., F.R.C.S., F R S, professor of anatomy in the University of Manchester London: Kegan Paul, Trench, Trübner and Co 1939. Pp. 268. 10*s* 6*d*.

THESE are occasional lectures delivered before various bodies in Australia between 1923 and 1937. "Mechanism or Vitalism?" is the first paper, which both names and states the author's main theme This is developed from various aspects later and it runs through the whole book "The Spirit of Adventure" and "Universities and Life" deal with the historical background and the present performance of the British university, whose system of education too often succeeds in quenching instead of quickening the love of intellectual adventure "Disease and Individuality" brings the facts of embryology to the support of the old doctrine of diathesis, though more as circumstantial evidence than as proof. "The Master Surgeon" is an attempt to trace a common outline in the great historical figures of surgery—men of large physique who liked living in a large way, men of great energy and self-reliance yet with a curious thread of religious feeling running through their lives, men who fulfilled well the old Italian prescription for a good surgeon, that he should have "the eye of an eagle, the heart of a lion and the hand of a woman." "The Mammalian Toilet" is a fascinating description of how sundry animals keep their teeth and ears and coats clean, and of the structural modifications that they seem to have developed for that purpose; it culminates in the observation that the slope of the hair in the human scalp is the result of many generations of combing, with fingers or with implements—a conclusion which, as the author is well aware, has wide and unorthodox biological implications Few professors can produce on special occasions lectures which are so scholarly, instructive, entertaining and provocative as these

Electrocardiograms

An Elementary Atlas for Students and Practitioners. By H. WALLACE JONES, M Sc., M.D., F R C P., senior honorary physician and physician in charge of the heart department of the Royal Infirmary (Royal United Hospital), Liverpool; and E NOBLE CHAMBERLAIN, M.Sc., M.D., F.R.C P., physician to outpatients and to the heart department of the hospital. Bristol: John Wright and Sons. 1939. Pp. 51. 3*s*. 0*d*.

IN this small book the student is introduced to the complex subject of electrocardiography by means of forty-nine figures representing the better-known and commoner abnormalities. The clear tracings serve their purpose well, and the student or practitioner will find them quite adequate for his needs.

Physiology of the Uterus

By SAMUEL R M. REYNOLDS, M A., Ph.D., fellow of the John Simon Guggenheim Memorial Foundation in the University of Rochester school of medicine and dentistry, New York; associate professor of physiology in the Long Island college of medicine, Brooklyn, New York. London: Hamish Hamilton Medical Books. 1939 Pp. 417. 42s.

AFTER reading this book and examining the list of nearly 1200 references to original papers, one realises with something of a shock how grossly the uterus has been neglected by the writers of textbooks. It is also surprising that it has aroused so little enthusiasm among physiologists as an object of research, and that the enormous amount of work which has, in fact, been done on it has touched off none of those trains of controversy which from time to time bring subjects into the limelight and contribute so much to their advancement Every chapter in Dr Reynolds's book raises important and unsolved problems, many of which will now receive recognition for the first time But the book is more than a starting point for and stimulus to research It is an extraordinarily skilful compilation of existing knowledge, and some of the chapters, such as that on patterns of uterine mobility, are so completely and smoothly descriptive that it is difficult to realise how scattered and independent are the sources from which the author has gathered his information The growth, hormone control, circulaon, metabolism and innervation of the uterus and any related subjects are carefully considered, and so uch of significance emerges that no obstetrician or næcologist can claim an adequate scientific background for his work unless he is aware of the contents the book

reclinical Medicine

By MALFORD W THEWLIS M D attending specialist, general medicine, United States public health hospitals, New York City London Baillière, Tindall and Cox 1939 Pp 22[illegible] 13s 6d

ENGLISH readers will expect this book to be conrned with the student's studies before he reaches ard and outpatient work, but this is not its purpose t all Dr Thewlis is describing here the preliminary ctors concerned in disease before symptoms appear nd indeed before pathological changes have developed his is an aspect of medicine not only of extreme nportance but of great complexity How far riodical examination of healthy people may allow etection of changes before disease has really begun, nd how much undue attention to minor alterations in hysical wellbeing may lead to neurosis, are debatable oints Certainly it is possible to err on the side of ver-caution Some of the more questionable ecommendations here put forward are a protective egimen against appendicitis, examination of the rostate twice a year for every man over forty, and isease studies before marriage On the other hand Dr Thewlis has gathered together many simple yet almost certainly effective bits of advice which are often forgotten

Skeletgroei en Interne Secretie

By Dr LEON H LEVIE Assen Van Gorcum and Co 1939 Pp 68 Fl 2 90

THIS little monograph summarises the recent researches of Dr Levie and his colleagues in Amsterdam on the mode of action of the anterior pituitary growth hormones The first part deals with the methods used for the assay of their preparations and the evidence for regarding the growth hormone as purely chondrotrophic—i e, acting purely on the proliferating cartilage bone This part of the book is more readily available to English readers in an article in the first number of the *Journal of Endocrinology* The excellent microphotographs appear to substantiate the author's claims, but it is presumed that other factors enter into the pituitary control of growth since their preparations have no effect on membrane bones such as those of the skull It is difficult to understand the facial changes in acromegaly on this hypothesis By repeated injections of growth hormone over 12 months in rats, giant animals are being produced but Dr Levie explains the frequent failure of hormone therapy in human dwarfs by the fact that though their epiphyseal junctions are often open they must be considered as functionally closed owing to the transverse bony plates on either side of the epiphyses

The second half of the book is concerned with the depression of growth rate in rats produced by massive œstrone and stilbœstrol injections The author finds that while this action of œstrone can be inhibited by simultaneous injection of growth hormone the same does not apply to stilbœstrol This observation suggests that stilbœstrol in these large doses may act directly on bone growth and not just as a pituitary antagonist There has been other evidence that stilbœstrol may directly affect tissue metabolism The previous literature is reviewed with a fairly wide bibliography and there is an English summary

Nursing in Time of War

By P H MITCHINER, O B E, T D, M D, M S, F R C S, honorary surgeon to the King, surgeon and lecturer in surgery at St Thomas's Hospital, and E E P MACMANUS, O B E, S R N, S C M, matron to Guy's Hospital London J and A Churchill 1939 Pp 100 1s 6d

THE writers of this excellent little book both had great experience during the last war, and both have worked with the Territorials between the wars They are therefore eminently suited to compile such a work and they have done it well Nurses, laymen and laywomen in the auxiliary services, and young—and even old—members of the medical profession will find it a good eighteen-pennyworth They must not expect to find in it details to fit every occasion, but it aims to lay down general principles on which these can be worked out. Doctors might particularly note the paragraph dealing with records So many claim that it is their job to treat the patient and not to fill in forms, but the accuracy of casualty lists hinges on the record made at the first station to which a person is taken, and inaccuracies or omissions there may be a source of distress to relatives and friends for months afterwards

Operative Dental Surgery

(4th ed) By J B PARFITT, L.R C P, L.D S, consulting dental surgeon to Guy's Hospital, London, and W E HERBERT, L.R C P, L D S, professor of dental surgery in the University of London at Guy's Hospital medical school London: Edward Arnold and Co 1939 Pp 177 25s

IN this edition more space is given to gold inlays, the technique of which has now so much improved that the acquisition of skill in this kind of restoration both for single fillings and as a basis for small bridges on vital teeth has become an essential part of dental training The greater part of the book is, as before, concerned with the repair of teeth by filling and crowning, but short practical sections on scaling, extractions, minor surgical operations and local anæsthesia are also included. All these have been revised, and in many parts the text is entirely new As a textbook for students this work will hold its important place, and dental practitioners will value it for its excellent advice on everyday problems such as surgery-lighting and the details of modern improvements in procedure

Training for Childbirth

By MINNIE RANDELL, S R N, S C M, T M M G, principal of the school of massage and sister-in-charge of the department of physiotherapy, St Thomas's Hospital, London London J and A Churchill 1939 Pp 161. 7s 6d.

FOR some years Miss Randell has been testing and developing a practical training for the effort of childbirth and for rapid postpartum recovery She contends that if the prospective mother thoroughly understands the processes of pregnancy and birth and is taught how to use her muscles, and when and how to relax, she will assist herself efficiently with full confidence. In the first chapter Miss Randell presents in an able and interesting fashion the anatomy and physiology of labour Every young woman should read this admirable summary, for in spite of modern frankness few girls have a sound grasp of Nature's preparations for maternity. On this basis Miss Randell proceeds to formulate exercises for special muscle strengthening, methods of relaxation and certain positions of the body to ease and assist labour pains. She advocates seated or squatting positions in the earlier stages, and a kneeling or prone attitude when in bed. To prove her points she gives a series of letters and diaries of first labours from many of her own students and patients Finally she deals with postnatal treatment and illustrates with photographs the rapid return to a lithe normal figure when her methods are followed. Nurse, masseuse, general practitioner and patient will all appreciate this book.

Medical Societies

ROYAL SOCIETY OF MEDICINE

SECTION OF LARYNGOLOGY

At a meeting of this section on Dec 1, Prof. **Markus Hajek** gave a demonstration on some specimens illustrating the anatomy of the accessory sinuses of the nose. These specimens were the few that he had saved out of over a hundred that he had used for teaching during the last fifty years. At the end of the demonstration he presented the specimens to the Royal College of Surgeons in gratitude for the hospitality that this country has shown him in his old age. These specimens will form a valuable addition to the college collection. Mr. T. B. Layton, the president of the section, accepted the gift in the name of the college. The section then considered a series of cases designed to illustrate various points in the diagnosis and treatment of

Orbital Complications of Acute Sinusitis

Mr H. G. **Percy** described a case of recovery from meningitis in which the white cells had gone up to 2000. She had been treated with sulphanilamide and the temperature had been down for nine days, when it rose again and the swelling was incised without finding pus and without benefit Subsequently an external frontal-sinus operation had been done, after which the patient had got well There was some doubt as to whether she had done so as a result of the operation, for the temperature had already begun to fall before it was done. Indeed, there was some doubt as to whether the orbital lesion was due to sinusitis or to a stye on the lower eyelid present on admission.

Mr. **Eric Peet** showed a case at the other end of the scale of a lady who had attended Eights Week at Oxford with an orbital swelling, and had gone to her doctor only when the social festivities had ended. From the swelling which presented at the outer angle of the orbit he had obtained pus from which he grew Pfeiffer's bacillus. Through this wound he had felt a probe slip through a hole into the frontal sinus. An external frontal-sinus operation had been performed some six weeks later with success. Mr. Harold Kisch showed two cases, one of a small girl in whom an external frontal-sinus operation had been performed owing to a recurrence of symptoms on the fifth day. The resultant scar was almost invisible. Mr. Kisch's other case was that of a young man in whom all the symptoms had subsided without operation except for a slight proptosis of the left eye, which was still present after six weeks.

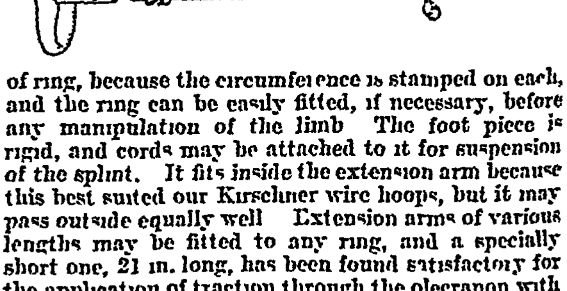
The **President** drew attention to what he believed to be the fact, that there are three such lesions: (1) an intra-orbital extra- or sub-periosteal abscess; (2) an inflammation, with or without suppuration, of the cellular tissue around the optic nerve; and (3) an infective thrombosis of one of the ophthalmic veins, usually the superior.

Mr. **Watson Williams** laid stress upon movements of the eye, which in the subperiosteal abscess were retained and in the cellulitis disappeared. Mr. Mill thought the cellulitis must be very rare for he had not, as yet, seen a case. Chemosis was discussed, and cases of subperiosteal abscess in which this had been alarming were mentioned. No reply was forthcoming to a question by the President as to the value of the examination of the discs. On the question of treatment the balance of opinion seemed to be in favour of what the President called the wait-and-see method, but for which Sir StClair Thomson preferred the more parliamentary expression expectant. Mr. Leslie Powell and Mr. Harold Kisch advocated early operation. The latter pointed out that by this he meant more than a simple incision, and he would advise opening the frontal sinus. He thought that the life of one of the patients shown by the President had been endangered by delay in operating. To this the President replied that the patient's life had already been endangered so much by the disease that he had thought it would be terminated by an operation before there was any evidence of localisation. With this little passage of arms the meeting ended.

New Inventions

A MODIFIED THOMAS SPLINT

A modified Thomas splint, the details of which are shown in the diagram, has been in use at St James's Hospital, Leeds, for two years The apparatus is valuable because the parts of many splints can be stored in a small room, a cupboard 52 in. high, 32 in. wide and 24 in deep, with a drawer 12 in deep at the bottom, being sufficient to hold forty splints and their accessories Splints can therefore be kept in the theatre stores. It is easy to choose the correct size of ring, because the circumference is stamped on each, and the ring can be easily fitted, if necessary, before any manipulation of the limb The foot piece is rigid, and cords may be attached to it for suspension of the splint. It fits inside the extension arm because this best suited our Kirschner wire hoops, but it may pass outside equally well Extension arms of various lengths may be fitted to any ring, and a specially short one, 21 in. long, has been found satisfactory for the application of traction through the olecranon with the elbow at right angles.



The apparatus has been made for me by Taylor and Higgins, Cookridge Street, Leeds

H. Agar, M.B. Leeds, F.R.C.S.

THE LANCET

LONDON SATURDAY, DECEMBER 16, 1939

APICAL SCAR

The post-mortem evidence of healed tuberculosis has always caused serious differences of opinion amongst morbid anatomists—as great in fact as the evidence for the early lesion, apical or subapical, has amongst clinicians. The Swiss statistics are generally quoted as the standard example of the doctrine that the vast majority of people show signs of obsolete tuberculosis at autopsy. **Reinhart**'s figures for Berne were 98 88, and **Naegeli**'s for Zurich, perhaps the most frequently cited of all tuberculosis statistics, 71 per cent. British records are not numerous, the most recent are those of **Todd** for Edinburgh in 1926–27, which showed nearly 70 per cent of lesions, of which between a sixth and a seventh were active. These figures have formed a valuable background and control for the tuberculin tests made on cross sections of the general population of our great cities during life, and they have been of some importance in assessing the records of chest radiology. But when we put the concrete question what are the unequivocal signs of obsolete tuberculosis in the lung and pleura, it is not so easily answered. On what signs, for example, did **Reinhart** and **Naegeli** base their conclusions? Apart from calcification, the end-results of the collagenous reaction of the healing lesion is fibrosis, be it in the form of puckered scars, adhesions or mere pleural thickening, and in so far as the fibrosis is effective in arresting the tuberculous process it is apt to be equally successful in obliterating the evidence of its cause. Thickening of the apical pleura is a case in point. Before the days of good chest radiograms great stress was laid on the physical signs of contracted apices, impaired percussion note and harsh breath sounds, and many a patient was wrongly diagnosed tuberculous. Then the German radiologists rediscovered the subapical lesion (Frühinfiltrat) which **Kingston Fowler** had noted in the post-mortem room years before and which we had most of us forgotten, and the apical scar faded into the background.

Recent work from the department of pathology of the University of Manchester goes far to show that not only are the majority of apical scars non-tuberculous but that they are due to silica. In their original paper **Davson** and **Susman**[1] described the results of an investigation by ordinary histological methods as well as by the method of micro-incineration of the apical region of the lungs from 107 consecutive autopsies, excluding only 13 cases in which gross pulmonary disease was present. The ages ranged from under four to over seventy. The amount of silica present was estimated roughly by visual comparison, under polarised light, of incinerated sections 5μ thick. Siliceous matter was present in nearly all cases, but in general the amount increased with age. A moderate amount was first seen at twenty-five years of age, and a large amount at about fifty—results which correspond closely with the chemical analyses of normal lungs carried out by **Belt**, **Irwin** and **King**[2] and with those of **Jephcott**.[3] There was also a close correspondence between the amount of silica and the amount of carbon. Apical scars without evidence of healed tuberculosis (type A scars) were present in 40 of the 94 cases investigated, while scars with evidence of healed tuberculosis (type B scars) were present in 6. The commoner type A usually occurred exactly over the apex, and was firm, smooth and greyish-white, with variable degrees of puckering but without any sign of caseation or calcification on section. Pleural adhesions were commonly absent. The rarer type B scar as a rule appeared as a depressed fibrous puckering on the surface of the apex, usually with a firm localised adhesion to the parietal pleura, and contained on section either caseous or calcified foci. In three cases both types were present at an apex. Histologically, type B scars gave clear evidence of healed or quiescent tuberculosis, mainly one or more necrotic areas showing varying amounts of calcification, in all cases surrounded by a well defined fibrous capsule. In the type A scars the most striking feature, apart from the fibrosis, was the remarkable degree of elastic-fibre proliferation. In 13 cases actual silicotic nodules were demonstrable microscopically. These all belonged to later age groups and all had a high silica content in the lungs generally. In addition a definite relationship was shown to exist between the accumulation of siliceous dust in the upper part of the lung and the presence of type A scars. In the whole series of 94 cases there was none whose occupation appeared to predispose to silicosis.

Davson[4] has now studied the early stages of apical scar development. He finds that the earliest stages of type A fibrosis are recognisable in subjects as young as ten years, and that some degree of type A fibrosis is present in nearly every young adult. The study of these early changes has failed to show any histological evidence of the participation of an active tuberculous process except in cases of generalised tuberculosis, and in only 2 cases in the whole series was there definite evidence of healed tuberculosis in or near the apical pleura. Therefore, since complete continuity between the earliest changes and the more advanced type A scars has been traced, little justification exists for the view that tuberculosis plays any part in the ætiology of these lesions. There may be a doubtful group in which scarring is associated with dense adhesion to the parietal pleura and in which there is neither caseation nor calcification, but apical scars should only be regarded as certainly tuberculous if they contain foci of caseation or calcification.

---

[1] Davson J, and Susman W J Path Bact 1937 45 597

[2] Belt T H, Irwin, D A, and King, E J, Canad med Ass J 1936 34, 125

[3] Jephcott C M Canad publ Hlth J 1935 26 [illegible]

[4] Davson, J Path Bact November 1939 p 163

A CENTRAL HOSPITAL FUND

It is inevitable that the war will make changes in the structure of British medicine, and throughout the recent discussion in our correspondence columns many must have felt, first that the problem should be considered from a national and not a local angle, and secondly that an ounce of experiment was worth a pound of speculation. To all such it must seem that Lord NUFFIELD, with that nous for which he has become justly famous, has made possible just such an experiment. The Nuffield Medical Scheme indicated that a modern clinical school should be based on the fundamental sciences, rather than that the preclinical school should be the poor sister of the hospital. Nuffield College came into being to develop social science in this country by bringing the academician and the entrepreneur in living contact with each other. The PEP report on the British Health Services (1937) made numerous references to the facts that health problems may involve a complex of social and economic considerations and that research on organisation is sorely needed. At present three separate groups are concerned in the supply of hospital services in this country—the voluntary hospitals, the public authorities and the Ministry of Health The ministry's incursion is the result of the war, which has enforced one of the main recommendations of the report of the Voluntary Hospitals Commission under the chairmanship of Viscount Sankey in 1937—the division of the country into hospital regions The Sankey commission also recommended the formation of hospital regional councils to correlate hospital work and needs in the regions, and the formation of a central hospitals' council to coordinate the work of these regional councils. It was realised that such a reorganisation of the hospital services of the country could not be undertaken or the regionalisation scheme be fully implemented unless accompanied by cooperation with the local authorities and the state It can therefore be expected that such regional hospital councils would survey and coordinate the hospital services within their regions and consult the local authorities in matters of common interest.

The new Nuffield benefaction of a central fund for financial regionalisation may in a sense be regarded as a hospital fund for the provinces, including Scotland and Northern Ireland, analogous to the King's Fund in the London area But it is even more the endowment of a project for research in social organisation. Money talks, and no social experiment can make progress without a financial backing The lines of advance are already evident from recent happenings in Oxford The Oxford and District joint hospitals' board consists of members of the governing bodies and medical staffs of the associated hospitals, representatives of the local authorities and the contributory schemes, and members nominated by the university, the medical school, the British Medical Association and other bodies. It is becoming the rule for all questions relating to the coordination or extension of hospital services or the development of institutional and clinical medical services in the Oxford district to be referred to this board. Contact has been made with the survey committee of Barnett House, which has already published two volumes of its survey—"The Economics and Government of a Changing Area," and "Mental Health Services in Oxford City, Oxfordshire and Berkshire"—and has a third volume in publication.

It cannot be said that the reorganisation of hospital services is likely to be easy; they form a tangled skein and it will be hard to weave them into a harmonious whole. The working man, who has paid his share in rates, national insurance and contributory schemes, is in no mood to be considered the recipient of charity. Labour councils, who appreciate the power and efficiency of an organised community, are anxious to destroy the structure of patronage and nepotism which underlies the Florence Nightingale-Lady Bountiful tradition The individualist fears the loss of the voluntary impulse, and the dead hand of the municipality and the state. The doctor suspects that he may become an unpaid public servant whose labours are exploited at the same time as his means of living are reduced These are difficult problems and they can only be solved by experiment and by the creation of model schemes The hope is that such regional experiments will show that it is possible to combine within an integral national framework all the vigour and variety of local patriotism and effort.

FOOTWEAR

The failings of modern boots and shoes are now beginning to attract the attention they deserve. It is at last coming to be realised that the results in local and general ill health of such abuses as over-eating and intemperance pale into insignificance beside those of the abuse of the feet, for ill-fitting footwear is universal. The situation was regarded as serious enough by the group of industrial medical officers to justify a special meeting in London last autumn,[1] at which the feet of the industrial worker were considered by recognised experts from various sides. The medical officer to a large industrial firm there gave convincing evidence of the prevalence of painful feet among workpeople, though a physiologist, while agreeing that footwear was responsible for much distortion of the arches, was not sure that all the blame could be laid at its door. The research director of the British shoe industry opened up the idea of occupational footwear, carefully designed for its particular purpose, and he described an experimental shoe and gave proof of its effectiveness. The war has stopped these investigations.

In our present issue Dr. MARGARET EMSLIE takes us a step further back. She describes deformities found in the feet of children between the ages of two and four, and apart from lesions of the soft tissues few of the disabilities of adults are not represented in her list She shows how and where the customary shoes of infants fail to allow for normal variations of proportion, and how they may prevent the natural alteration in the shape of the foot when the change is made from standing to stepping In our previous issue Mr. LINDSAY emphasised the appalling divergence dictated by fashion between the shape of the shoe and the foot Why do we wear shoes at all, he asks, if it is not to protect the feet? But the maker seems far more concerned with what attracts the eye There is, he says, no direct coördination between the makers of the last and the fitters of the shoe, and the last maker follows ancient custom without help or guidance from fitter, manufacturer or anatomist Mr LINDSAY's chief complaints are, first, that the fore part of the shoe twists outwards, probably a survival of the idea that toes should point outwards, and second, that the sole is concave, so that the middle metatarsal bones are forced down below the inner and outer ones

---

[1] See *Lancet* 1938, i, 1480

How large is the proportion of misfits is admitted in the trade press[2] Only 80 per cent of the populace can be fitted from stock, and then only if they accept the style the salesman offers them Alternative fittings are not made except in one or two models of the more expensive kinds A fifth of urban mankind must either have shoes made specially for them or wear misfits Dr JAMES MENNELL, who devoted most of his presidential address before the physical medicine section of the R S M to footgear, cannot understand why shoe shop windows should be labelled Ladies and Children on one side and Gents on the other A human foot is a human foot, and it would need a micrometer to distinguish some of the bones of the foot in the two sexes, most of them being quite indistinguishable In his view the sole of any shoe should be roughly triangular, the angle at the heel being somewhat rounded off He exhorts men not to scoff at women's high heels, for many men would walk more comfortably on a 2½-inch heel No one, he says, should have a shoe fitted sitting, for the length of the foot increases half an inch when it is stood on, two sizes should be added to allow for the sliding forward of the foot and at least half a size for the sock Mr W S CREER[3] lately summed up what he thinks constitutes an ideal shoe (1) it must grip the heel firmly, (2) there must be a bar or other tie which fits over and grips the instep, (8) the fore part must conform to the foot and must allow room for the toes to move, and (4) the heel, if the shoe is to be worn out of doors, or at work or play, must not be higher than 1–1½ inches "So simple," he remarks, "but so difficult to obtain" Except for congenital abnormalities and gross disease or injury, Dr MENNELL insists that a painless and perfect foot should be our heritage, and that we have been deprived of this heritage by lack of coöperation between manufacturer, anatomist and medical man It is not too late to rectify this In war-time pride and prejudice should more readily give place to sense and sensibility

RESEARCH GOES ON

THE transference of so many people at the outbreak of war from research to its application must have raised hopes among those micro-organisms that were getting cold feet at the advances of chemotherapy, the cancer whatsit and others of their kind that they were to be allowed a respite for the duration But in and around London at any rate their hopes seem likely to be dashed It is true that the research department of the Royal College of Surgeons has closed down, its staff having taken to the transfusion of blood, and that elsewhere the personnel has been much reduced, but most of the essential work is to go on though its direction may be changed None of the work under the Medical Research Council which is regarded as worthy and profitable will be interfered with, and certainly the National Institute is in full swing The Therapeutic Trials Committee will go on as usual if manufacturers ask for the testing of their products, though the disruption of most of the general hospitals will make its task more difficult The committee has lately had to arrange for the testing of drugs to take the place of those previously made in Germany or otherwise abroad The laboratories of Messrs May and Baker will continue as far as they can with their chemotherapeutic research, as well as with the investigation of processes of manufacturing foreign drugs A considerable part of the research work being carried out at the Wellcome Physiological Research Laboratories in immunology, pharmacology, chemotherapy and hormone principles may bear directly on the production of material needed for war purposes, so that these activities are not likely to be diminished The L C C research units will go on if enough of their staff are left, and the cardiovascular unit at Lambeth, for instance, is fully occupied The research financed by the British Empire Cancer Campaign will go on with the money in hand and the income derived from legacies The work under the Imperial Cancer Research Fund is being done almost as comprehensively as before, although some of the medical and technical staff have gone into Government service Those who are left are still working with hormones, viruses and carcinogenic substances and on the general pathology of cancer, as well as testing out the possible therapeutic activity of chemical substances At Oxford, too, a peripatetic correspondent[1] leaves us in no doubt as to the stern resolve of the Nuffield workers to keep their noses to the grindstone rather than follow them into more romantic paths And finally there is no slowing of the flow of original articles to this office From this sample, then, it seems that there is no danger that research will be allowed to hibernate

---

[2] *Commerc Intell J* Feb 18 1939 p 121
[3] *Brit med J* 1938 2, 6

[1] See *Lancet* Nov 11, 1939, p 1051

ANNOTATIONS

WRITING ON THE WALL

THAT walls are meant to be written on is obvious to the meanest and most infantile intelligence. Standing by the wayside, they offer a smooth expanse past which hurry or dawdle people whose attention, only partly occupied by locomotory activities, is ready to be caught for the moment by the startling phrase or the novel symbol Hence it is natural that upon them should appear words of condemnation or exhortation which lose little by the anonymity of their authors The announcement that Billy Smith is a donkey may indeed, among the narrow circle to which the statement appeals, carry greater weight than would the same sentiment if vocally expressed by the unknown writer. Likewise the demand to "up with" this or "down with" that politico-economic system, accompanied as it often is by symbols of apparently esoteric significance, may suggest to the passer-by some powerful and unknown forces beyond his ken, whereas, as far as an ordinary man can judge, both the condemnatory and hortatory scripts can do little more than afford a glow of personal satisfaction to the scribes. The phrase expressing the exhortation is, we believe, called a slogan, a word that originally meant a Highland battle-cry but now indicates a phrase which—like, we will imagine, "Flanagan is good for you" or "Skim milk is best"—endeavours to influence behaviour by appealing to the Bellman's principle "What I tell you three times is true" These reflections are prompted, partly by Doctor Don this week in our correspondence columns, partly by the newspaper account of a man who recently entered a billposter's office in a northern city and handed over a sum of money to be used in placarding walls and hoardings with the slogan "Insist on a doctor of like sex." Why the passer-by should thus insist, or what would happen if he did, is in the absence of reasoned statement incapable of discussion Nor have we any means of knowing what motive prompts this exhortation We can only make an armchair survey of the general aspect of writing on the wall and wonder where this particular example should find a place

IMPORTANCE OF THE SERUM ALBUMIN

IN experiments on the metabolism of albumin described in his Harvey lecture by Prof. A. Ashley Weech,[1] the serum albumin in dogs fed on a low protein diet was found to decline rapidly at first but slower as time went on. If the dog was then returned to a normal diet regeneration took place at a constant rate till the initial level was reached. But if the dog was kept on the low diet for many months the rate of albumin regeneration soon slowed down and it took a very long time to reach the original level. A similar state of affairs is found in man in nutritional œdema and nephrosis. This is explained by supposing that the organ involved in the regenerative process—namely, the liver—is damaged in these conditions Experiments have revealed that albumin is slightly more permeable through the capillary wall than globulin It has been known for some time that, far from there being a hydræmic plethora in nephrosis, the plasma volume is actually reduced. In animals there has now been shown to be a parallelism between a fall in plasma protein and a fall in blood volume In dogs kept on a low protein diet there is a fall in cell volume and plasma volume, but after 20–30 days the plasma volume becomes stable while the red-cell volume continues to fall. The failure of the plasma volume to go on falling is explained by assuming that an opposing force is liberated by the diminishing red-cell volume to prevent an excessively low blood volume.

In treating nutritional œdema in dogs Weech produced diuresis by injecting intravenously a concentrated solution of dog serum The immediate effect of this on the blood was a great increase in the plasma volume and a slight decrease in the serum-protein concentration due to dilution of the serum globulin. Transfusion with washed red cells also produced a diuresis, without, of course, contributing to the serum-protein concentration Diuresis thus produced is therefore probably due to improved circulation consequent on increased blood volume Various diets were tested to determine their efficiency in regenerating serum protein in dogs. Beef serum was found to be best, followed by egg-white, beef muscle, beef liver and casein. These experiments clearly have a considerable bearing on similar clinical conditions in man.

PSYCHOGENESIS OF SCHIZOPHRENIA

THERE has been general agreement that the neuroses may have a psychological causation, but the view that the psychoses may arise in the same way has found little support, at any rate in this country. Prof. C. G. Jung, who twenty years ago first put forward the results of his work in this field, has again clearly defined the position.[1] Following Bleuler, Jung and others of the Zurich school have agreed that the secondary symptoms of schizophrenia have a psychological causation similar to that found in the neuroses. The primary symptom, however, is more difficult to explain, and for this Bleuler himself has been in favour of an organic origin. This primary symptom is, in Bleuler's opinion, the disturbance of association processes, a sort of disintegration and shattering of the personality that is quite unlike anything seen in the neuroses inasmuch as it tends to be irreversible, the fragments losing the "seal of the personality," and the dissociation being "no longer fluid and changeable, but like a mirror broken in pieces" Jung suggests that the primary symptom is similar to the concept of *abaissement du niveau mental* used by Pierre Janet to explain the symptomatology of hysteria. In the case of schizophrenia the abaissement has reached a level unheard of in neurosis, and thereby the foundations of the personality are injured. In this case normal associations are interfered with, incomplete realisation and therefore inadequate emotional reactions are caused and the threshold of consciousness is lowered to a degree in which normally inhibited unconscious material can intrude upon consciousness. An abaissement can be produced by many causes—by fatigue, normal sleep, intoxication, fever, anæmia, shock, intense affects and organic nervous disease, as well as by constitutional and hereditary factors. Often a neurosis results in which the unity of the personality remains intact, but once the patient allows himself to be swayed by the intrusion of strange contents from the unconscious—"a case that does not fight, that even identifies himself with the morbid elements"—he exposes himself to the suspicion of schizophrenia. Here the abaissement has reached the stage where the ego has lost all power of resistance against the onslaught of a more powerful unconscious The presence of bizarre, strange mental content is to Jung no evidence of poisoned brain cells, for he has found just these phenomena in the dreams of normal people and neurotics, and in the works of modern artists and poets, and suggestive parallels in mythology and the symbolism of primitive races The fact that schizophrenia disturbs the basic qualities of the personality accounts for the presence in consciousness of this archaic material

---

[1] Weech, A. A., Harvey Lectures (New York) 1938–39 London: Baillière, Tindall and Cox 1939 Pp 57

[1] Jung, C G, *J. ment. Sci.* September, 1939

The difference between neurosis and psychosis is therefore to Jung only a matter of degree, a question of whether the individual can or cannot stand up to a certain panic, or the chronic strain of a psyche at war with itself In certain cases there is evidence, in his opinion, to suggest that it is not so much a primary weakness of the conscious which is brought out by the abaissement as the primary strength of the unconscious In certain people he would postulate an arrested development resulting in a persistence of an infantile, primitive mentality, full of archaic material Here an extra effort of adaptation results in consciousness being overwhelmed by this latent material Although Jung can show that the content of schizophrenic thought-disorder is not essentially different from that found in neurosis, he still finds many objections to the theory of pure psychogenesis of this disease The far-reaching consequences of the abaissement, the incurability, ultimate affective dementia and bad prognosis are serious objections He cannot conceive how psychical events can cause an abaissement which destroys the unity of the personality In his own practice, however, he claims some success from psychotherapy for the mild chronic schizophrenic He is enthusiastic but certainly not over-optimistic His conclusion, which is likely to receive increasing support, is that it is wellnigh impossible to prove that schizophrenia has either an exclusively organic or exclusively psychological causation

CHEMOTHERAPY OF LYMPHOGRANULOMA INGUINALE

BEFORE the introduction of the sulphanilamide group of drugs the treatment of lymphopathia venerea in its different manifestations, such as lymphogranuloma inguinale, anorectal stenosis, and esthiomène, was not at all promising Pardo-Castello and his colleagues,[1] reviewing 285 cases in Cuba, showed that the results with various active remedies differed little from those of merely expectant treatment, although it is true that Lana Martinez[2] and others have reported favourably on the use of Frei's antigen Foreign pioneers in the sulphanilamide therapy of lymphogranuloma inguinale were enumerated by MacCallum and Findlay,[3] who showed that sulphanilamide could protect mice to some degree against an active strain of the responsible virus The first success in England in the treatment of lymphogranuloma inguinale with sulphanilamide appears to be that reported by Laird,[4] O R Hamilton[5] in 1938 secured 13 cures in 15 cases, and Earle[6] treated 2 cases with M & B 693 in British West Indies Midana,[7] of Turin, next recorded 21 cases of lymphogranuloma inguinale treated with sulphanilamide (Streptosil) 2 4 g (eight tablets of 0 3 g each) being given by mouth and 10 c.cm of a 2 per cent solution by intravenous injection daily for not more than sixteen days With a past experience of more than 250 other cases of lymphopathia venerea treated by other methods, he declared that the results were brilliant and surpassed all expectations Glandular lesions at all stages were amenable, and only 1 patient needed a second course of treatment In particular, 1 case of eighteen months' duration, which had proved resistant to various treatments, such as iodine, antimony, and radiotherapy, was rapidly cured with sulphanilamide The same treatment applied to 7 patients with the anorectal syndrome, however, was not so satisfactory, in fact no definite conclusions could be drawn In 4 cases of ulcerative esthiomène, on the other hand, the results are described as encouraging

On another page in this issue Earle publishes 12 illustrative cases (10 of lymphogranuloma and 2 of rectal stenosis) selected from a further 23 successfully treated with M. & B 693 administered in five-day courses of five to six 0 5 g tablets daily The best results were obtained when treatment was started early —i.e, in the stage of adenitis Cure was slower when fistulæ had formed

Sodium sulphanilate has also been successfully used in lymphogranuloma inguinale Hebb et al[8] cured or considerably improved 14 advanced cases by a prolonged treatment (six to thirty-five weeks) with either sodium sulphanilylsulphanilate or sodium sulphanilate There appeared to be no significant difference between these two drugs, except that sodium sulphanilate was less toxic This is the first recorded use of sodium sulphanilate in place of sulphanilamide. This substance is as effective as sulphanilamide in vitro against pneumococci, but not so effective against streptococci In vivo, on the other hand, it is without effect against either organism Whereas sulphanilamide diffuses quickly into all parts of the body after administration by mouth, sodium sulphanilate does not, and Schulemann has found that it does not reach the cerebrospinal fluid Sodium sulphanilate is much less toxic and is cheaper than sulphanilamide, therefore, if the results of Hebb et al are confirmed, it might be tried in other infections—e g, gonorrhœa Sodium sulphanilate may be as good as sulphanilamide in certain infections if it can reach the infecting agent Clearly it would be useless in meningitis and in encephalitis

VITAL STATISTICS FROM WEST AFRICA

ACCORDING to a return published by the Crown Agents for the Colonies[9] the non-native officials employed in West Africa—that is, in Gambia, Sierra Leone, Gold Coast and Nigeria—number about 3000 In the quinquennium 1934–38 their average annual death-rate was approximately 7 per 1000, while a further 15 per 1000 were invalided The corresponding rates for 1938 were slightly higher—namely, 8 9 and 19 0—but fluctuations of this order from year to year are only to be expected in so small a population A graph showing the annual death rates in the last twenty years suggests that there has been a distinct improvement at ages under 50 The invaliding rate similarly graphed also shows a consistent fall for the youngest age group, 15–29 years, but at ages over 30 the improvement ceased in 1931 or 1932 and an increase has since been apparent The report offers no explanation of this tendency, which seems well deserving of study In the year under review, 1938, only 6 of the 29 deaths recorded were due to tropical diseases, 3 being from yellow fever and 3 from blackwater fever, all of which occurred in Nigeria. The largest contributors to the 62 cases of invaliding were psychasthenia (16 cases) and gastric and duodenal ulcer (8 cases); judging from recent work on the nervous factor in ulceration these may, perhaps, represent dissimilar reactions to similar causes.

---

[1] Pardo-Castello, Ferrer Ibarra and Tiant, *Vida nueva* 1938 42 465, cited in *Lancet* 1939, 1 746

[2] Lana Martinez, F, *Sem med esp* Jan 28 1939 p 113

[3] MacCallum F O, and Findlay G M *Lancet* 1938, 2 136

[4] Laird S M, *Brit med J* 1938 2 1013

[5] Quoted by G A H Buttle see *Lancet*, 1939 1, 1441

[6] Earle K V, *Ibid* p 995

[7] Midana A, *Minerva med* *Roma* July 11 1939 p 40

[8] Hebb, A Sullivan S. O, and Felton L. D, *U S publ Hlth Rep* 1938, 54, 1750

[9] West Africa Vital Statistics of Non-native Officials Returns for 1938 Published by the Crown Agents for the Colonies 4 Millbank, London, S W 1 1939 Pp 7 6d

STATUS LYMPHATICUS REDIVIVUS

BEFORE the section of anæsthetics of the Royal Society of Medicine on Dec. 1 Dr. John Taylor[1] reviewed the history of lymphatism or status lymphaticus from its birth in the seventeenth century, and gave an account of the anatomical facts and the clinical phenomena which justify its acceptance as an entity. He showed how misleading had been the conception which regarded enlargement of the thymus as the chief sign of the condition and pressure by the thymus as the chief cause of the symptoms The essential feature, without which a pathologist would not recognise lymphatism, is generalised excess of lymphoid tissue. Dr. Taylor gave brief details of fourteen patients in whom he had found this excess post mortem All these patients had died without showing either in life or after death any lesion which could be held responsible for their demise, except the lymphatism. Several had died during or just after taking ether as an anæsthetic, never for any operation involving serious shock or excessive hæmorrhage He also expounded the modern view which associates lymphatism with deficiency of the adrenal cortex as well as the one which maintains that there is no such thing as status lymphaticus. In contrast with this latter Dr. Taylor read the recorded opinions of three well-known living pathologists all of whom supported its existence. Experienced anæsthetists gave instances which had convinced them of its reality. But there were others, younger and therefore more sceptical, who seemed to think that lymphatism as the cause of death at operation was merely a synonym for inefficient anæsthetic practice

HEPARIN IN SEPTIC ENDOCARDITIS

THE physician who is faced with a case of septic endocarditis tends—in the words of Cozens Bailey—to "pick up his ball and go on to the next hole" This disease has shown such resistance to therapeutic endeavour that interest is certain to be roused by any new form of treatment. Two papers from the United States record the use of heparin in this condition, supplemented in one series with sulphapyridine The hypothetical basis for its use is that the streptococcus lies immured in the cardiac vegetation sheltered by the constantly growing platelet thrombus from the depredations of leucocytes and antibacterial substances If the progressive accumulation of platelets which forms the vegetation could be prevented leucocytes, natural immune bodies and chemotherapeutic agents might be able to reach the organisms in effective concentration. Best[2] has shown that heparin will prevent the formation of platelet thrombi in dogs so that it would probably stop the increase in size of the vegetations in the human disease, a contention for which Friedmann, Hamburger and Katz[3] offer some corroboration Kelson and White[4] have combined heparin and sulphapyridine in seven cases of streptococcus viridans endocarditis; two cases had reactions from impure heparin and treatment had to be abandoned, and two died from the disease within a few days, but the remaining three were free from all symptoms and had negative blood-cultures 19, 18 and 4 weeks respectively after discontinuing treatment Heparin in a strength of 2000 units per 100 c.cm. of normal saline was administered by continuous intravenous drip at a rate of 15–20 drops per min. for 14 days; sulphapyridine (4–6 g. daily) being given for a week before, during, and for a week after the infusion of heparin These results are reported in a preliminary communication and the authors are careful to restrain their enthusiasm, but it is clear that no therapeutic measures have been followed in the past by such a high proportion of remissions of such long duration; Kelson and White would certainly agree that enough time has not yet elapsed to claim that they are cures

OSTEO-ARTHRITIS

Heberden first described his nodes in the 18th century, but it is still uncertain whether after all these curious bone swellings on the last joints of the fingers may not be a form of gout. Dr. Ernest Fletcher's Heberden lecture on osteo-arthritis[1] fitly commemorates one of the great forerunners in the differentiation of diseases of the joints It is a thoughtful and painstaking study of 340 cases, which in his opinion represent the incidence of the various types of rheumatism in a poor East-end neighbourhood In this total the "infective"—i.e., the rheumatoid—cases number 67, with an incidence in three women to one man, and an average age of onset of forty-one. An even greater preponderance of women and a younger onset have been noted amongst factory girls in the north-west and in Scotland Fletcher has 18 cases in which infective arthritis led to osteo-arthritis and 3 in which this sequence was reversed. "General" osteo-arthritis accounts for 103 cases Other forms were: of the spine 34, associated with gout 15, traumatic 10, occupational 7, and of the hip-joints 15 cases. Statistics compiled from any large number of cases are of course fundamentally affected by the classification adopted, and Dr. Fletcher might have been wise to follow the main divisions proposed by the Ministry of Health in 1923 or those of the International League against Rheumatism or the Royal College of Physicians In a miscellaneous outpatient practice the proportion of osteo-arthritic cases (nearly two-thirds of the total number of rheumatic cases) seems unusual. In looking for the cause of a disease it is always important to note the age of onset. Apart from the earlier onset of the more acute forms of rheumatoid disease the lecturer's figures will be generally accepted, that neuritis and fibrositis as well as osteo-arthritis belong to middle and later life He regards the type of arthritis, often with obesity, seen at the menopause as distinct from osteo-arthritis, the probability being that rheumatoid and menopausal and osteo-arthritis are all distinct diseases He admits, like others, that the X-ray findings may be deceptive, as they often show advanced osteo-arthritic changes, in the spine, for example, without any clinical signs of disease. Thus, osteo-arthritis cannot be regarded simply as a disease of wear and tear; some other factor, infective, metabolic, endocrine, traumatic, must intervene.

Stamm's view,[2] derived from orthopædic observations, is that osteo-arthritis is emphatically a mechanical arthritis, the grinding of the central area of the articulation being connected with failure of lubrication. An important factor is also the condition of the blood-supply—in one phase of the disease excessive (hyperæmia), in another defective or entirely wanting. The tissues of a joint, like others, undergo atrophy under constant pressure, but often show overgrowth and hypertrophy under intermittent pressure Stamm concludes that osteo arthritis is rather a process than a disease, associated, it may be, with previous arthritis or metabolic changes, as in gout, or with malnutrition in old age

---

[1] Dr Taylor's paper will be published in full in an early number of the society's *Proceedings*

[2] Murray, D. W G, Jaques, L B, Perrett, T S, and Best, C H, *Surgery* 1937, 2, 163

[3] Friedman, M Hamburger, W W, and Katz, L N., *J Amer. med. Ass*, Nov. 4, 1939 p 1702

[4] Kelson, S. R and White, P D, *Ibid*, p 1700

[1] *Brit J. Rheum* October, 1939

[2] Stamm, T. T, *Lancet*, Sept. 30, 1939, p. 734

PURPOSE IN NATURE

In republishing his lectures in book form (see p 1268) Professor Wood Jones has us in debt for showing us again how much more than an anatomist an anatomist can be He is not content with the mechanistic biology of 30 or 40 years ago, to which so many biologists still adhere In too many ways the combination of physics, chemistry and Darwinism seems inadequate to explain the phenomena of what we recognise as life In particular it takes no account of the idea of purpose, without which many happenings in physiology and in ontogeny simply do not make sense Admittedly no-one has a convincing non-mechanistic theory with which to satisfy the doubters, but Wood Jones prefers to wait with Langdon-Davis for a yet unborn Einstein of biology, rather than to acquiesce in the view that biology is a branch of physical science and nothing remains but to work out its details And in one delightful passage, with his tongue in his cheek and his eye on Lawrence Henderson, he asks why it comes about that inorganic conditions on the earth are so favourable to the development of life The temperature, the atmosphere, the wide distribution of carbon and of water with its most peculiar physical properties, and sundry other features of the earth are all unique, or nearly unique, in the universe, and the odds against their chance occurrence in conjunction seem overwhelming Are we to detect an element of purpose in the ordering of the inorganic world, adapting it to the needs of life? At this point the professor takes refuge with the poets, willing to believe with Francis Thompson that, somehow or other, there is a mysterious nexus between the flower and the star

DRUG TRAFFIC IN WAR-TIME

The Central Opium Board constituted by the Geneva Convention of 1925 has been in communication with the states, parties and non-parties, to that convention urging that the activities of the board must be carried on Drug addiction became a serious menace during the last war, and it is feared that unless the traffic in narcotics continues under international control similar evils may arise this time By a world-wide mechanism, with an international centre at Geneva, effective supervision of the traffic in dangerous drugs has been largely secured and it is claimed that the contractual basis of the work under the Permanent Central Opium Board remains solid Accordingly all the states have been requested to remit to the board the statistics and estimates which for the last ten years have been furnished and from which the legitimate requirements of the several scheduled narcotics by each country are determined The governments of France, Switzerland and the United States have promptly indicated their agreement The cordial response of the last named, though not a member of the League of Nations, is especially welcome It will indeed be remembered that it was the early interest of the United States in the opium traffic that led to their cooperation with the League's organisation while consistently refusing membership thereof The secretary of state in his reply observes that "the government of the United States has regularly and thoroughly cooperated with the Permanent Central Opium Board, and its associated organ the Drug Supervisory Body since their establishment, and expects to do so in future, as in the past, as long as their independence is maintained" It is upon the operations of these two bodies that the entire fabric of international drug control principally rests, and that it is of the highest importance to the whole world that the Central Opium Board and the supervisory body should continue to function, adequately, effectively and without interruption, notwithstanding the disturbance of war

CEREALS AND RICKETS

It is now nearly twenty years ago that Mellanby showed[1] that cereals may produce rickets in young animals, increasing the cereals in diets deficient in the antirachitic vitamin intensified the symptoms of rickets The explanation then suggested that cereals speeded up the growth of the animals without at the same time supplying sufficient calcium and phosphorus for the bones has since been found inadequate, although possessing some validity On the whole, the cereals with the largest content of Ca and P, such as oatmeal, maize and wheat-germ, cause the lowest retention of these elements in the bones and teeth A large part of the organic phosphorus of cereals, as of seeds in general, is in the form of phytic (inositol-hexaphosphoric) acid in combination with calcium and magnesium Phytin itself is not absorbed in the alimentary canal, its utilisation being due to breakdown into inositol and phosphoric acid from bacterial action in the intestine Hot dilute acids have similar effect, a significant fact in view of the reduced rachitic action of cereals which have been boiled with acid Harrison and Mellanby have tried[2] the effect of feeding phytic acid and its crystalline alkaline salt to dogs. Both were highly rachitogenic when added to a borderline diet, the action being roughly comparable to that of oatmeal of similar phytin content The rachitogenic action of sodium phytate, as of cereals, is antagonised by adding extra calcium to the diet Commercial phytin itself is slightly antirachitic The amount of phytic acid in oatmeal is about twice that needed to precipitate the calcium in the cereal On the other hand, Palmer and Mottram[3] trace the tendency of cereals to produce rickets to their low calcium and high phosphorus content. This tendency can, they find, be counteracted entirely by adding calcium lactate to the diet so as to make the Ca P ratio 1 0 5, and they conclude that the rachitogenic action of cereals does not reside in the phytin they contain, for the reason that the addition of phytin actually reduces the rickets The first of these conclusions is consistent with the facts put forth by Harrison and Mellanby, the other may be explained by the fact that the commercial brand of phytin used by both groups of workers was found by Harrison and Mellanby to have a Ca P ratio of 1 1 8 while the phytin prepared from oatmeal gave a ratio of 1 3, with a Ca Mg ratio of 1 1 5 against 1 0 125 in the commercial preparation Harrison and Mellanby draw from their work the practical conclusion that the rickets-producing action of cereals is to be overcome, not by increasing the P of the diet (as would hold if it were true that the cereal action is due to unavailable P), but by increasing the Ca intake—e g, by drinking more milk It seems likely, in fact, that the rachitogenic action of cereals only comes into effect in diets on or below the borderline of necessary Ca and vitamin D It is unfortunate that, for economic reasons, these borderline diets so often contain a disproportionately high amount of cereal

---

[1] Mellanby E., *Lancet*, 1920 1 1290
[2] Harrison D C and Mellanby, *Biochem J* 1939 33 1660
[3] Palmer N and Mottram, J C *Ibid*, p 512

SPECIAL ARTICLES

NEUROSES IN WAR-TIME

A YEAR ago Dr Crichton-Miller, at a meeting of the Royal Society of Medicine, said that in the last war the term shell-shock did much harm by implying a single ætiology, and he expressed the hope that in some future war the medical profession would be so sure of their ground as to apply to each war neurotic specific questions concerning the possible synergy of organic and psychic factors, of resultant and purposive mechanisms The conference convened by the Minister of Pensions in July, under the chairmanship of Lord Horder, to advise the Government as to general principles for dealing with these cases has now reported,[1] and the report begins by expanding what Dr. Crichton-Miller had in mind

During the last war, says the report, the occurrence of large numbers of neuroses engendered by fear, shock, exhaustion, physical and mental strain or lack of sleep, and the rapidly increasing incidence of these from 1916 onwards, caught both the services and the medical profession unprepared with any organisation or agreed method of treatment to deal with them. The result was an accumulation of a great number of this type of "casualty" and a consequent lowering of the general morale. These neuroses were popularly called "shell shock," a term which came into use in 1914, when it was believed that the great bulk of nervous disorders noted in the field of war had their origin in the physical effects of concussion by high explosives or of poisoning by gases. At that time this theory was widely prevalent and was even promulgated by neuro-psychiatrists of experience It soon became obvious that this view could not be justified since precisely similar disabilities occurred not only amongst men who had not been subjected to any such exceptional exposure but also amongst those who had not been overseas Moreover, the nervous disorders arising during the war differed in no material way from those well known in civil life Again, many men who were blown up or buried to the same extent were able to return to duty without admission to hospital and without apparently suffering any durable effects However, the term shell-shock became a catchword among the troops and was welcomed by the man suffering from nervous symptoms as he did not realise, or could not admit to himself, or to others, that he might be suffering from the effects of fright or terror Such was the appeal of the word that this became a most desirable complaint from which to suffer.

CLASSIFICATION

Most of these neuroses took the form of either an anxiety state or hysteria. Anxiety states reveal a common characteristic—the constant presence of fear or anxiety accompanied to a greater or lesser extent by vasomotor and visceral concomitants In mild cases the anxiety is simply a prolongation and exaggeration of the natural anxiety experienced by everyone when exposed to war conditions The source of this anxiety is commonly the fear of being found afraid or anxiety may be aroused by the fear of loss of business and other financial and domestic worries In more severe cases the condition is induced by morbid anxiety in which there is no apparent logical connexion between war experiences and the symptoms of anxiety. Here the anxiety is out of all proportion to the apparent exciting cause or may have no obvious cause at all In most of such cases it is experienced as a diffuse state of emotional tension undirected to any specific object or situation and causes a state of fearful expectation In a few predisposed people the anxiety reaction is characterised by the development of phobias, or the anxiety may be transferred from its original object to some other situation which appears to the patient to afford reasonable grounds for apprehension, or to preoccupations of a hypochondriacal type. It may be accompanied at the outset by some degree of depression, or depression may be a secondary development.

Hysteria, more than any other form of mental reaction, provides the clearest example of the onset of neurosis due to failure of adaptation as the result of conflict between individual needs and social requirements. Suggestion is the most important factor as a cause for the symptoms Physical manifestations of severe emotional disturbance such as mutism and tremors, or the effects of a minor physical injury producing some temporary loss of power in the limbs, are readily perpetuated as hysterical symptoms by means of suggestion in men who have been subjected to physical or mental stress. Suggestions by medical officers or other attendants, in the course of examination and treatment, may have serious results and are often responsible for the onset of such symptoms. Underlying the process of suggestion is a conflict between the instinct of self-preservation on the one hand and ideas of duty and self-respect on the other. The development of the symptom satisfies the patient's ethical requirements, provides an escape from duty on ground of physical incapacity and at the same time gives effect to his individual needs by removing him from an intolerable situation. In a sense hysteria is thus an unwitting purposive or defence reaction, the patient being unaware of any such motivation Not only is this unconscious motive responsible for the onset of the neurosis but it helps to perpetuate it until the conflict is solved by other means It is aggravated by popular misconceptions as to the nature of the neurosis, by the sympathy of friends, and whenever it achieves its aim—invaliding from the battle-field or the service—an increase in the incidence of these neuroses is encouraged Further, if it should lead to any economic gain, treatment becomes extremely difficult and often useless

The committee appointed by the Army Council in 1920, after condemning the term shell-shock as a gross and costly misnomer, divided the cases into three main classes —

(1) Genuine concussion without visible wound as a result of shell explosions; this includes 5–10 per cent. of the cases.

(2) Emotional shock, either acute in men with a neuropathic predisposition or developing slowly as a result of prolonged strain and terrifying experience, the final breakdown being sometimes brought about by some relatively trivial cause; this includes 80 per cent of cases.

(3) Nervous and mental exhaustion, the result of prolonged strain and hardship.

They agreed that in the great majority of chronic cases there already existed a congenital or acquired predisposition to excessive and therefore pathological reaction but that the neuroses of war may manifest themselves even in those of sound nervous constitution provided stress be sufficiently severe and prolonged. They recommended that no case of psychoneurosis or mental breakdown, even when attributed to shell explosion, should be classified as a battle casualty, and set out the following factors as tending to increase the incidence and severity of mental and nervous disorders in time of war

---

[1] The report is being issued to members of the Government medical services and to the medical press

(a) All those factors by which a soldier, or even a potential soldier, is encouraged to believe that weakening of mental control provides an honourable avenue of escape from military service

(b) The ignorance of the general community, both civil and military, together with the lack of interest evinced by the medical profession before the war regarding the origin, nature and significance of mental, and especially emotional, disorders

(c) Those preventable conditions which undermine a man's mental and physical health and lower his power of resistance—e g , bad sanitation, bad accommodation, abuse of alcohol and drugs or venereal disease

(d) The use of the term shell shock and such terms as "NYDN," 'DAH' which become catchwords

DIAGNOSIS OF CONCUSSION AND EMOTIONAL SHOCK

The conference's report points out the importance of differentiating concussion from acute emotional shock not only because inappropriate treatment of the latter in the early stages retards recovery but also because incapacity certificates for physical injuries under the Personal Injuries (Emergency Provisions) Act apply to cases of concussion The diagnosis of concussion should be made only when the patient has suffered physical injury by the direct explosion of a shell, by being knocked over by it or by being buried under debris of a building or shelter The concussed patient becomes immediately unconscious or is at least severely dazed or stunned This loss of consciousness may last for a few minutes to several days When the immediate effect passes off there is complete amnesia for a period immediately before and after the injury, and it is not possible to restore this memory by any therapeutic measures Patients suffering from emotional shock also often state that they became unconscious after the incident to which they attribute their symptoms, but by careful questioning they can usually recall most of their experiences

Evidences of direct physical injury are often associated with concussion, such as rupture of the tympanic membranes, epistaxis, contusions and, more rarely, signs of organic injury of the nervous system The early symptoms can rarely be mistaken, but those of later periods are often misinterpreted. The most characteristic of these are headache, which gets worse as the day goes on, pain and stiffness of the neck, vertigo, mental and physical inertia with drowsiness and heavy sleep The pupils may be irregular and their reaction to light sluggish In the early stages the tendon jerks are usually depressed, later becoming brisk or exaggerated There may be fine tremors of the limbs but the coarse tremulousness of the limbs and head which is so common in the neuroses does not develop in concussion Emotional instability is absent

Acute emotional shock may develop independently of any close exposure to the place of explosion The fact of being subjected to bombardment or air-raid or seeing horrifying sights may suffice to precipitate it An avalanche of emotion seems to overwhelm the patient's consciousness, releasing primitive reactions The clinical picture in the more severe cases may be one of terror, stark panic and confusion or one of physical and mental collapse In the former type the tendency is to hyperactivity—aimless running, incoordination, incoherence screaming and disorientation In the latter type the reverse condition of stupor may occur In this state it is difficult or impossible to elicit information The patient may sit, or lie, about in an apathetic state and may be shaken with violent tremors In such cases there may be a cataleptic state for a considerable time In milder cases, stupor is less profound, and the patients may carry out simple actions in a hesitating way They look dazed or confused, are easily startled and take little notice of what is going on around them The stupor may last from a few hours to several days and then pass off suddenly or gradually.

TREATMENT

The immediate treatment of patients exhibiting nervous symptoms during and after air-raids is extremely important, for if they are neglected the morale of the population suffers seriously

According to the Emergency Medical Service memorandum issued by the Ministry of Health[2] the first essential in the handling of these patients when they arrive at an aid post is to convince them that their symptoms indicate no serious injury and that they will soon disappear This necessitates reassurance and the re establishment of self-confidence combined with such methods as may lead to even temporary disappearance or abatement of the symptoms In patients who are simply frightened, and in emotional cases, reassurance combined with an appeal to personal and patriotic pride and a large dose of bromide will usually be sufficient The patients should then be sent to their homes When confusion, excitement, loss of memory or disorientation are the chief symptoms, rest, warmth, hot drinks with plenty of sugar or a dose of bromide (gr 20–30) or phenobarbitone (gr 1) will be necessary When patients are restless or excited, a hypodermic injection of morphia (gr ¼) or preferably an intramuscular injection of sodium phenobarbitone (gr 1½) combined with hyoscine hydrobromide (gr 1/100) may be required When hysterical symptoms predominate an attempt should be made at once to influence or remove them by suggestion, for instance by showing the patient that a powerless limb is not paralysed or anæsthetic, or by making a speechless patient phonate by coughing and then utter a single sound as "Ah" Hysterical tremor can be usually arrested by making the patient relax his muscles

The severity and duration of the disorder and its extension to other individuals depends in many cases on the treatment which it receives at the onset If patients in whom such a step is not absolutely necessary are transferred to hospital, the conditions from which they are suffering may be accentuated or prolonged, so that every effort must be made after the preliminary treatment to send such patients back to their own homes, under escort if necessary

RADIOTHERAPY AND UTERINE CANCER

THE third volume of the annual report of the Health Organisation of the League of Nations on the results of radiotherapy in cancer of the uterine cervix shows that progress is being made. The report now includes 16 statements from clinics in Sweden, the United States, France, Belgium, Holland, Denmark and Great Britain, and the results, which cover over ten years, show a steady improvement in the survival figures Dr J. Heyman, the editor, points out that it is still difficult to ensure that statistics are comparable and that even the simplified basis which has been adopted allows some variation in the method of assessing results It is, for instance, necessary when comparing the results of treatment from various clinics to realise that in some between 30 and 40 per cent. of the patients examined with a view to treatment were not treated in that clinic, while in others where almost all the cases examined were accepted for treatment the high proportion of cases in stages 1 and 2 suggest that they were fortunate in the type of case presenting.

---

[2] Memorandum for the Guidance of Medical Officers and other Personnel at First-aid Posts H.M Stationery Office 1939, Pp 14 3d

The most important single statement is that of Dr. Heyman from Radiumhemmet, Stockholm, because all the cases of carcinoma of the uterine cervix diagnosed in the district of Sweden served by the hospital are actually referred there. The absolute cure-rate there indicates the possibility of cure for this disease in a whole population With this in mind, the rate quoted —26·8 per cent.—is very encouraging.

A summary of all the reports shows that out of 7958 patients submitted to radiological treatment 27·6 per cent. lived for over five years. The relative cure-rate for each of the four stages is:—

Stage 1	871 patients	57·2 per cent.
„ 2	2305 „	37·6 „
„ 3	3420 „	22·0 „
„ 4	1360 „	5·5 „

These figures show conclusively that radium therapy not only cures a satisfactory proportion of patients in the early stages where operation might have given equally good results, but also cures 22 per cent. of patients in stage 3 where operation would have been impossible. These facts effectively dispose of recent suggestions that radium as a therapeutic agent had proved so disappointing that it should be discarded. For cancer of the cervix radium remains the treatment of choice.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

LORD NUFFIELD'S GIFT

SCOTTISH medical circles are delighted by Lord Nuffield's inauguration of a central hospital fund. It is understood that Scottish hospitals will benefit from this fund, but it is not yet known whether Scotland will be considered one region or whether there will be four regions centred upon the four major cities.

STORAGE OF RADIUM

At the outbreak of war Edinburgh Royal Infirmary had about four grammes of radium in constant use, amounting in value to about £28,000. It was recognised that the dispersal of this radium by explosion might be dangerous to life as well as a colossal waste of money. Within the grounds of the infirmary an old shaft was discovered which led into the Crawley tunnel, 60 feet below the ground. This tunnel runs from the Meadows to the region of the Castle and carries a water main. The old shaft has now been utilised as a store for the radium By means of a chain and pulley the amounts needed for day-to-day hospital use can readily be brought up, but at no time is a sufficient amount above ground to cause serious danger should it be disseminated during an air-raid.

PEEL HOUSE

Lord Craigmyle has handed over to the Government this old mansion house near Galashiels, and it has now been opened as the first base hospital in Scotland under the emergency scheme. The house is impressive in the Scottish baronial style, and from some of the windows it is possible to see the Sheriff's Knowe, where Walter Scott had a turf seat and wrote two cantos of "Marmion." All the wards are within sight of the Border hills and almost within earshot of the Tweed. The rooms have been converted into wards with accommodation for 40 beds, and fully equipped operating theatres, but later the mansion house itself will become the administrative offices, and 10 huts now being built in the gardens will be the hospital wards These radiate from a large central block and each hut will accommodate 40 patients Other huts are being built as living and sleeping quarters for 160 nurses, while the kitchens will be in another hut. Some time ago the Edinburgh corporation took over the mansion as a convalescent home for small children, but they gave up possession on the understanding that it would be available for all classes of acute illness, military or civilian

ON MEDICAL STUDIES

In an address to the Bute medical society Air Vice-Marshal Sir David Munro, rector of St. Andrews University, said that unless the student is well grounded in the fundamental sciences there is little chance of his ever advancing knowledge in the medical field. He stressed the importance of arts, and maintained that an understanding of the human mind is the greatest asset of the successful doctor. He believed that students are likely to be taught the fundamental sciences better in a university than in a hospital medical school because the university tended to attract the best men, and in the hospital medical school there is a tendency to regard preclinical subjects as so much drudgery, merely subjects in which examinations have to be passed. It seemed to him that medicine was going to pass more and more into the hands of the state. Those who entered the state services were given a career free from the commercialisation of the private practice, and the results would be advantageous so long as the services did not become over-officialised. But it would be a bad day when the general practitioner lost his place, for he was the expert in human relations.

SWEDEN

(FROM AN OCCASIONAL CORRESPONDENT)

NUTRITIONAL DISEASES IN MENTAL HOSPITALS

ASYLUM physicians in Sweden have suddenly become nutrition-conscious It has of course long been known that gastro-intestinal disturbances are common in asylum inmates, but it is a far cry from this observation to the suspicion that a goodly percentage of mental disease is the more or less direct outcome of malnutrition, the correction of which restores the patient to health This change of outlook has largely been effected by the discovery that pellagra and subpellagra can often be found in mental hospitals, and that antipellagra treatment, if instituted before extensive skin changes have set in, is remarkably successful in restoring the patient to sanity. At the Beckomberga mental hospital, Dr. Erland Mindus started a large-scale experiment in the autumn of 1937. He sorted out some 60 women patients in whom depression with or without paranoia was associated with low gastric acidity, lassitude, anorexia, loss of weight, anæmia and sleeplessness, fitting into the picture of "neurasthenia gastrogenica." The patients were divided into two groups. Those in the first group were given a stomach extract with hydrochloric acid, vitamins B_1 and B_2, and extra rations of meat and eggs The second group, which served as a control, received no special diet or treatment The first group fared strikingly better than the second

IRRADIATION OF MINERS

Here in the north the miner enjoys little natural sunlight in the winter months From the middle of September till the middle of March he sees the sun only on Sundays and for a brief moment at midday on work-days The miners employed by the Boliden Company have been provided with a solarium, which according to its sponsor Dr Johan Ponten is the only one of its kind in Sweden if not in the whole of Scandinavia He started it in December, 1937, when the miners were encouraged to take a three minute exposure every other day after a douche or bath Infrared and ultraviolet rays were allowed to play on the naked body in a room kept at 25°-30° C In 22 healthy miners it was found that the average calcium content of the serum was considerably lower before the solarium was opened than it was three months later More instructive from the clinician's point of view was the result of an inquiry circulated among the miners last March Of the 175 underground workers circularised, 94 sent in replies Only 7 per cent expressed doubts as to the value of this prophylactic measure, most of the workers being enthusiastic Infections such as colds in the head were less frequent, and the incidence of one-day diseases fell from 208 in 1937 to 183 in 1938 Excluding accidents, in 1937 there were 9 7 days of sickness per head, and in 1938 8 5 days—a reduction of 12 per cent About 12 per cent. of the miners noticed slight irritation of the skin when they first underwent treatment, and one miner who took off his coloured glasses to see what was happening paid for his inquisitiveness with an attack of conjunctivitis

CENTENARY OF THE FATHER OF SWEDISH GYMNASTICS

This year Sweden is celebrating in various ways the centenary of Prof Petter Henrik Ling, who died on May 3, 1839 The son of a poor clergyman, Ling was dogged by ill health most of his life, and indeed was condemned as an incurable consumptive when a young man Though the public was inclined to mock at his views, it is to the everlasting credit of the Swedish medical profession that its leaders took Ling seriously, although he held no medical degree, and in 1831 he was elected a member of the Swedish Medical Society He was the first director of the Central Institute for Gymnastics, which he helped to found The principles he laid down seem as sound today as they were a century ago The Central Institute has trained an army of experts in exercises helpful in health and in sickness, and the existence of such a centre has been the best safeguard against the squandering of the legacy of Ling's teaching Poet and author, as well as pioneer in gymnastics, Ling was a pathetic figure with his hacking cough, laboured respiration, bouts of dyspepsia, choleric temperament and what was called rheumatism He was 63 when he died

PANEL AND CONTRACT PRACTICE

The R M O Disappears

WHEN, in 1920, the service of regional medical officers was brought into operation, there had been many indications that practitioners would welcome the opportunity of obtaining the advice of Government medical officers whose experience and impartial position qualified them to advise on doubtful questions of capacity *for* work, and the Minister of Health hoped that the new service would remove many of the difficulties of insurance medical practice With the outbreak of war the R M O service has been suspended, and this is a suitable opportunity to consider in what degree this high hope has been realised It would be idle to pretend that the service has been a popular one The *National Insurance Gazette* for Nov 23 says that one of the extraordinary things about it was that it got very busy indeed when a doctor's easy prescribing produced a loss of, say, £20 a year to the Drug Fund, but they never heard of any similar excitement if a doctor's easy certification produced a loss of £200 a year to the approved society So much for the lay point of view The attitude of insurance practitioners has been similar to that of the average householder towards the air-raid warden—one of enforced toleration

The functions of the regional medical staff include (*a*) examining insured persons referred to them by approved societies, insurance committees or insurance practitioners and advising on incapacity for work, or on diagnosis and treatment with a view to restoration of working capacity, (*b*) inspection of medical records, investigation of prescribing and certification and the like, (*c*) carrying out inquiries on behalf of the Ministry or other Government departments, for instance, inquiries on behalf of the Home Office in connexion with the administration of the Dangerous Drugs Acts The vast majority of examinations of insured persons are made at the request of an approved society Thus in 1938 approved societies referred for decision as to incapacity no fewer than 450,703 cases, while practitioners referred 1902 Consultation references during the same period were 983 by societies and only 68 by practitioners In a large proportion of cases the insured persons are found to be capable of work, but in many of these the insurance practitioner himself would have declared the insured person off the funds by the date of the examination or at least acquiesces in the view of the R M O If the insurance practitioner differs from the R M O he continues to certify incapacity, but it is by no means easy for the insured person to obtain further benefit This causes irritation both to the insured person and to the doctor *There is, however, no doubt that the* existence of medical referees is something of a safeguard against the practitioner who is inclined to issue certificates in an off-hand way The keeping of medical records is, of course, one of the duties of insurance practitioners, but it is probably the least popular of them The average doctor is more concerned with treating his patient than with making notes, and the visit of a R M O who has to satisfy himself that a sufficiency of notes has been made is not calculated to please him Still less is he pleased when his prescribing is called into question or there is the implied suggestion that he has been guilty of laxity in certification This is not the fault of the R M O's, who, however delicately they tread, are received with a certain amount of suspicion The R M O will therefore depart unmourned by the doctors or patients Perhaps when he returns after the war it may be possible to approach more nearly to the ideal of sweet cooperation and mutual consultation that the Minister of Health envisaged at his birth nineteen years ago

GRAINS AND SCRUPLES

FROM A NORTH-COUNTRY PRACTITIONER

III

It is well to avoid the controversy which rages from time to time about the already overcrowded students' curriculum. This seems to suffer like our educational system in general from being designed, not for what the majority will eventually have to do, but for the élite. Schoolmasters do not point to the general high level of their boys, and how well they are equipped for the life they are going to lead, but to the number of scholarships the brighter ones have gained. Similarly in medicine, with every specialty clamouring for a place, it is overlooked that the vast majority of doctors are going to end up in general practice. It seems a pity that apart from sporadic attempts in certain schools there is no instruction about its numerous pitfalls, financial, legal and professional. If such instruction were given our invaluable medical defence societies might have fewer claims. Young practitioners would have some idea how thin is the ice over which we constantly and thoughtlessly skate. If they were only told to read Douthwaite's excellent short book on the subject they might be saved from entering into business arrangements which are both unwise and unfair. Experience has been defined as the wisdom which enables us to recognise as an undesirable old acquaintance the folly we have already embraced. A little instruction would enable them to avoid the painful consequences of ignorance. At present it is not given.

In partnership arrangements it is not usually a question of guile on the part of the senior man; again it is usually ignorance. On at least three occasions I have found a senior man wishing to put a clause in a partnership deed giving him the right to bring in his son as a partner some fifteen or twenty years hence. The common practice of employing one solicitor and one accountant to act for both parties to an agreement often leads to ill-drawn partnership deeds. Adequate instruction would avoid deeds with no sickness clause and no method of dissolution of partnership; it would save a man from remaining a junior partner almost in perpetuity; it would make it clear to a young man that he will receive almost no income for six months after he starts work, though he may have to pay income tax on what he has booked but not yet received; it would stress the value and importance of book debts, the easiest method of keeping accounts, how to cut the drug bill, and how often to visit patients, so that they feel neither neglected nor overvisited. Nobody but the clerk to an insurance committee can have a full knowledge of all the rules and regulations which govern the working of the National Health Insurance Act. But a young man must know what he has undertaken to do, under the terms of service, in the way of certification, filling up forms, and rules about absence and deputies. When the patient breaks rules under the Act insurance committees regard it as due to ignorance. The practitioner on the other hand will find himself penalised very readily for any such breach. Fuller instructions might also be given on legal obligations and relations with the coroner.

• • •

Work for insurance companies is another branch of practice on which instruction might be given. It is often interesting, usually well paid, and has a way of growing if only the practitioner has some idea of what the company wants. Examination for workmen's compensation and other accident claims involves some knowledge of the company's point of view. Short reports difficult to decipher and sent in several days after the examination are of no use to them. Students should be told that what is wanted is a typewritten report dispatched on the day of examination giving a perfectly fair account of the history of the accident, whether the condition is consistent with the history, and what is the present condition. An opinion as to the probable duration of the disability, any complications which may ensue, the possibility of permanent incapacity, observations on the adequacy of treatment, and the effect of any pre-existing condition, should be given. Every word of that opinion the doctor must be prepared to substantiate under cross-examination. If one is not sure it is well to say so. Companies do not want a report biased in their favour—this only leads them astray. It is obvious though not always remembered that anything which the company's doctor may say in his favour to the person he is examining carries a great deal more weight than it should, and will be readily seized upon by solicitors. On the other hand when acting for one's own patient if an opportunity is given of a joint examination with the company's doctor, it should be looked on as a golden opportunity for reaching complete agreement as to actual physical findings and as far as possible as to opinion. By contrast examinations for life insurance are simple and straightforward. It is well to remember that companies soon tire of returning examination forms with a covering letter asking for the completion of the form by the answer to question 3b which has been omitted. Young practitioners might also well be warned against the agent who calls to offer examinations on condition that a policy is taken out. After a few months it is quite certain that he will be doing the same thing elsewhere.

• • •

Ought we to write "Ichabod" at the beginning of any discussion on professors? Perhaps like bishops they have become too numerous to retain their old station. Probably they never were as great as their students thought. Probably also the lack of a retiring age produced characters in the old days because there was time for legend to grow about them. Names like Jowett and Butler were once household words and any Edinburgh man of seventy will tell you of the giants who ruled there in his days. The modern universities too had no difficulty in producing their quota. There is no doubt that senates are now appointing men of possibly even greater technical ability, but equally there is no doubt that they no longer guide and influence their students in the old manner.

Professorial functions are at a minimum threefold: to organise a department, to produce or inculcate original work in that department, and to teach. How often are the first and last of these functions overlooked when appointments are made, and stress laid only on the volume and to a lesser extent the quality of published works? It is still possible for a man to climb the educational ladder from elementary school to a first-class honours degree and thence by way of research grants to assistant lecturer, lecturer, and professor without ever having gone outside his own narrow specialty. Why should such an one be expected either to teach or to organise? One go-getter I knew kept a list of all the professors of his particular subject together with their ages, when they were due to retire, and any special infirmity from which they suffered, which might leave the way open before the due time. He arrived long before his time. Whilst his department is probably well organised I imagine it would be futile for students to look there for inspiration.

• • •

For medical students this habit of the university is particularly unfortunate. In the premedical subjects there is a tendency to regard the students as a necessary evil—not to be taken seriously—an outlook which the students heartily reciprocate so far as the subjects in question go. If they next fall into the hands of a really snow-white physiologist, who feels his subject to be a pure science and believes that the majority of human reactions can be shown on a galvanometer or a smoked drum, their lot is even more unfortunate. Snow White looks on their desire to be taught such physiology as will have application to clinical medicine as a prostitution of his science. Doc, Sleepy, Grumpy and Dopey are left to sleep quietly at the back of the lecture theatre, while poor Bashful is picked out and persuaded to take a B.Sc. in physiology. When it comes to pathology they may find a bacteriologist in charge, who has no use for anything preserved in a bottle in spirit, or alternatively a formalin-hardened morbid anatomist with a healthy scorn for glorified market-gardening. Eventually when they come to the clinical subjects they find part-time professors, whose appointments are almost entirely honorary, who have been appointed because of their position on the hospital staff. The qualifications which well merited the hospital appointment have little or nothing in common with the functions of a professor. The best men are often so busy in lucrative practice that were it not for the status which a professorship gives, these twenty-pound-a-year appointments would always be filled with second class men. The worst exhibition comes when a real materialist grabs the title and then decides to provide the students with exactly twenty-pounds' worth—so much and no more. The vast majority of doctors are grateful to those who taught them the elements of their profession, the trouble is that they so rarely feel it was the professors. The appointment of full-time professors does not supply the answer to the problem. The salaries offered are so much less than a good man can earn in private practice that the universities are once more under the necessity of hawking their vacant professorships in clinical subjects, and gratefully recording the acceptance of the second-best. Possibly the solution lies in reasonably well-paid part-time appointments with some limitation of private practice. The old-timers were what they were because they were general practitioners in their own lines. Should we not ask for the appointment of men who can teach, who can organise under them as many specialists as can be paid for? Should we not stop looking upon those who are really hag-ridden by specialism as the repository of all future revelation, simply because we cannot understand either what they say, or what they write?

PUBLIC HEALTH

THE CHIEF MEDICAL OFFICER ON NUTRITION

It is a welcome sign of the times that the chief medical officer of the Ministry of Health gives so much space in his report to nutrition, for, as his predecessor said, nutrition is the foundation of the public health. The main activity of the Advisory Committee on Nutrition has been discussion of the budgets collected by the Ministry of Labour, the distribution of the population of Great Britain into income groups and the institution of dietary surveys. They propose to express the nutrients in the diets surveyed as consumption per head, which is surely better than the plan, which they also propose to adopt for calories and protein, of calculation per "man-value." There are so many standards of the relation of the needs of children and adolescents to those of adults that it is doubtful if the calculation per man-value, even of calories, has much significance, and as regards protein if it is not definitely misleading. Many dietitians think that the attempt to express the needs of children for the different constituents of diet as fractions of the adult male's should go into cold storage, possibly for ever. It is good news that feeding experiments involving the giving of supplementary foods belonging to the protective groups have made progress. The results may supply guidance in the desperately difficult task of *feeding the nation in war time*. The chief medical officer rightly includes in his report the gist of publications of the League of Nations, on whose committees the ministry is represented by Dr. H. E. Magee. *The giving of cereals* before the age of six months is condemned by the League committee, and after this age suitable preparations of potatoes are recommended. The practice of American pædiatricians of giving ripe banana pulp to infants even as young as three months—a practice which has been adopted in feeding marasmic and cœliac babies at a somewhat later age in this country[1]—would hardly meet with their approval. The League committee also urges a more extensive use of skimmed and separated milk. In this country the supply of skimmed milk is now hedged round by such restrictions that it is almost impossible to procure it, and hospitals in urban districts are forced to skim their own milk when feeding children with *cœliac disease*.

It is heartening to read that the number of licensed T.T. herds of cattle has doubled in the period 1936–38, but it is regrettable that the number of accredited producers is nearing or has reached saturation point. Nothing is said on the controversial topic of pasteurisation, and a disproportionate space is given to undulant fever, 38 cases of which were reported in 1938. This may be, as the report suggests, only a fraction of the actual cases, but even so they bear but small relation to the new cases of bovine tuberculosis almost certainly initiated by tuberculous milk.

Reference is made to the Food and Drugs Act, 1938, and to the *possibility* under that act of the Minister of Health making regulations as to the composition of foods. It is to be hoped that the ministry will actively proceed in this matter and also make some attempt to protect the public against the use of misleading labels and advertisements. Section 6 of the act should serve as a check on extravagant and mendacious claims made by advertisers about commercial articles of food, but it will only do so if the ministry is fearless and ruthless. The section on meat inspection will be a gift to the vegetarians. It is almost unbelievable that dead one-day-old chicks or dead unhatched chicks have been used for the making of "chicken paste" as filling for pies in the Midlands. But such is the madness of an acquisitive age that commercial men sink to this level and we have to keep a Ministry of Health to prevent them.

---

[1] Thursfield H *Arch Dis Childh* 1927 2 49

LETTERS TO THE EDITOR

THE CHRISTMAS GIFT

SIR,—On Dec 1 £278 13s 6*d*. had been received in donations towards our Christmas gifts fund. This will enable us to distribute gifts to our annuitants, but we also have 300 to 400 beneficiaries on our books who are in receipt of regular and annual grants Their circumstances are similar to those of our annuitants and in previous years they have also received the Christmas gift I should be very grateful if those of your readers who have not yet contributed would send a donation, however small, to the Royal Medical Benevolent Fund, Christmas Gift Account, Wormingford, Essex.

Last Christmas we distributed £1174, and I hope we may be able to do the same this year, but time is short

I am, Sir, yours faithfully,

Wormingford, Essex

THOS. BARLOW,
President

THE E.M.S. AND PARLIAMENT

SIR,—Certain developments affecting the Emergency Medical Service may perhaps be usefully discussed in relation to parliamentary questions which have appeared on the order paper during the past few weeks. The public anxiety as to the position of the voluntary hospitals, abundantly manifested in the lay press, has been reflected by questions in the House of Commons. The supersession announced by the Minister shortly after the outbreak of war (*Hansard*, Dec. 5) of the functions of the Central Medical War Committee by the Central Emergency Committee of the B M A has been subjected to frequent criticism Since the Central Emergency Committee appears to have been the sole or at least the chief advisory body of the ministry for the first few weeks of the war, to that committee must be ascribed the main responsibility for the measures taken during that period. As correspondents in THE LANCET and elsewhere have pointed out, the representation of the consultant class on that committee was so small as perhaps to explain the manifest lack of appreciation and knowledge of the position of consultants in London This has been one of the principal causes of the breakdown of those arrangements, resulting in the complete reorganisation of this part of the ministry's work after Oct 18. A new advisory committee then came into operation following upon the important meeting of the Royal College of Physicians on Oct 12, at which the college decided to take a hand in the future negotiations with the ministry.

As lately as Nov. 2, in answer to a question put by me, the Minister revealed that up to that date only 23 out of some 700 members of the honorary staffs of the London voluntary hospitals had accepted any of the several schemes for part-time service offered The most mischievous effects of this clearly lay in the practical cessation of two activities, impossible of achievement in the absence of an honorary staff—namely, the conduct of the outpatient, general and specialist departments, and the systematic education of medical students in London Pressed upon this point, in an answer on Nov. 23, the Minister disputed the accuracy of the statement that outpatient services had been in abeyance for ten weeks, but it is certain, notwithstanding ex-parte denials, that such outpatient departments as were being conducted were in fact carried on by junior and relatively inexperienced officers, mostly house-officers or registrars, with the inevitable result that patients coming from considerable distances for consultations and finding that the recognised specialists were not functioning did not repeat the experience, and consequently one of the most important functions of the teaching hospitals—that of offering consultations to the patients of practitioners outside the hospitals and often in districts remote from London—has largely faded out. The volume of the service to the community rendered by the voluntary hospitals in this connexion may be gauged by figures in the current report of King Edward's Hospital Fund for London, which shows that in the last year on record (1938) 10,260,000 outpatient attendances were registered at voluntary hospitals in London alone

How far the new conditions named by the Minister (*Hansard*, Nov. 23), and so ably summarised in your issue of Nov. 25, will mitigate the present impasse remains to be seen, but it seems obvious that had it not been for the action taken by the colleges the very unsatisfactory preceding conditions would have remained unaltered

The second important activity, only to be discharged by the honorary staff, is the teaching of medical students in London. Inasmuch as London schools receive three-fifths of all the medical students south of the Tweed the restoration of their activity is urgent. The apologists of the Emergency Medical Committee, it is interesting to note, are adopting the rather unexpected argument that the teaching of students has been in fact more satisfactory during their evacuation from London than in normal times, and this argument has been sustained in the public press by the dean of a teaching hospital, who is also a sector leader. The implications of the argument are surely somewhat dangerous to the continued existence of the medical schools in London, if it is seriously contended that the arrangements praised, which constitute a revival of something like the apprenticeship system, are a superior method of teaching to that evolved after many years of experience at the medical schools, and necessitating as it does a continuous and progressive prolongation of the medical curriculum

Another aspect of the E M S which has attracted parliamentary attention is the question of the responsibility for the selection of sector leaders in the first instance Answering Mr. de Rothschild on Nov. 23, Mr. Elliot said that "the group officers were appointed as representing the voluntary hospitals in London sectors," but he did not disclose how the appointments were made. From information supplied to me, neither the medical committees nor the boards of management were in all cases consulted as to the selection of these officers. In some cases the medical committees were informed that a certain officer had been "appointed" and confirmation was obtained for his appointment from the committee after it had in fact been made No contact appears to have been maintained either with the medical committees or with boards of management by the group officers, who are nevertheless described by the Minister as "representatives of the staffs," and some of the obvious misfits and misleading instructions resulting from these conditions have contributed largely to the dissatisfaction prevalent in many sectors.

A circumstance which accentuates the responsibility of the sector leaders is that the Minister, in his desire to avoid any suspicion of wishing to abolish the voluntary system, has sedulously avoided interfering with the arrangements made by those officers In some instances members of honorary staffs have been misled by their sector leader into believing that a modicum of private practice was not incompatible with their acceptance of whole-time service, and then have been confronted with a subsequent announcement from the Minister that such action obliged him to regard them as having accepted part time service on the basis of the offer made by him in the circular of Sept 18 (i e four-sevenths service on one third pay), a scheme which up to Nov 2 had attracted only five applications (*Hansard,* Nov 2) The relations of the sector leaders to their colleagues on the staffs of their respective hospitals will surely have to be overhauled if any normal working of the hospitals is to be resumed

I have dwelt more particularly on the essential importance of a return of an adequate number of the honorary staff, but the necessity of bringing back a due proportion of the nurses, without whom the proper treatment of the sick cannot be carried out, is equally pressing

Some of the confusion which has overcome the E M S must I think be ascribed to the contradictory advice tendered to the Minister by committees and individuals whom he was justified in regarding as representative of the profession Thus the chairman of the British Hospitals Association war emergency committee states in a letter to the press today that "at a recent meeting called by the ministry for the express purpose," his committee, responsible for hospital sector organisation, "expressed the view that at the present time the needs of the sick did not demand a more general reopening of voluntary hospitals in London" This dictum, which has not I think been made public earlier, is obviously in conflict with such expressions of public opinion as have appeared in the press and in Parliament Until the profession can speak with something like a united voice through its representatives there is little prospect of a happy resolution of the existing chaos

I am, Sir, yours faithfully,

ouse of Commons, Dec 8 E GRAHAM-LITTLE

BURN WARDS

SIR,—I was much interested in Mr Dennison's ount in your issue of Nov 25 of a five year series 398 burns and scalds treated in the Royal Hospital r Sick Children, Glasgow I would like, however, draw attention to a statement which he makes which incorrect—that the three teaching general hospitals Glasgow send on burned and scalded babies to the yal Hospital for Sick Children Apart altogether om the implication that these hospitals ignore the gency of immediate treatment of burns, I can assure r Dennison that as far as the Glasgow Royal firmary is concerned these cases are not sent away it are treated in the two special burn wards with eir associated shock room and theatre Over twenty ars ago, thanks to the enlightened policy of the anagers, wards were set aside solely for the treatent of burns and scalds

From October, 1935, to October, 1938, these wards ere under the care of Mr G C Swanson and for o of the three years I was the member of his rgical unit whom he deputed to take charge Over 0 patients passed through our hands, about 34 per nt of these being children of three years or under or most of that time the coagulant used was 0 5 per nt. crystal violet with 1 in 2000 brilliant green, ggested by Dr Robert Cruickshank The death rate as about 8 per cent and if deaths occurring in the st twelve hours were excluded it was 5 per cent n this series I never saw a case of blood stained omiting

When comparing two six months' series of cases, the one treated prophylactically with sulphanilamide, the other without, I was struck with the comparative rarity of the hæmolytic streptococcus and how seldom its presence was of grave significance

It is the fashion now to treat all oily dressings as anathema, yet for burns of the face a simple face-cream has been the routine treatment in the Royal Infirmary for years The cream is copiously applied without dressings and renewed as often as necessary The cosmetic results are excellent

To speed up the healing of raw areas in children I found buried reverdin grafts extremely useful, local anæsthesia proving quite effective

I am, Sir, yours faithfully,

Glasgow TINA GRAY

A PLAN FOR BRITISH HOSPITALS

SIR,—I have read with interest the article in your issue of Oct 28 entitled "A Plan for British Hospitals," as well as the numerous letters in subsequent issues commenting thereon Judging by the tone and temper of some of these letters your special commissioner can certainly claim that the "Plan," whether good or bad, has made the medical profession "think furiously"

Personally, I feel that this is not an appropriate moment for the discussion, much less the formulation, of any sort of comprehensive scheme of the hospital services of this country, whether voluntary or municipal My reasons for this view are briefly (*a*) that everything depends upon the duration of the war, and (*b*) that the medical profession is not at the moment in a proper state of mind to discuss and decide any big issues affecting either the hospital services or the profession itself It must surely be obvious to the most superficial thinker that if the war lasts, as some think it may, for at least three years and possibly longer, the whole structure of our social services must be gravely affected On the other hand, if, as some optimists think, the war is over in the spring of 1940, the position we should then have to consider, whether with regard to our hospitals or any other of our social services, would be entirely different

As I have said above, the medical profession is not in a state of mind at the moment to give thoughtful consideration to such fundamental issues as are raised in "A Plan for British Hospitals" There is just now a great deal of quite natural irritation and indignation in the minds of many of our medical colleagues arising from the fact that the war, more especially in regard to the Ministry of Health's emergency hospital scheme, has not gone "according to plan" Such a state of mind is more likely to lead to ill-advised conclusions than to well thought-out constructive planning For these reasons I do not propose to discuss the "Plan," or the conclusions set out on pages 950 and 951, or any of the letters thereon from your numerous correspondents I should, however, like to place before the minds of your readers a few thoughts which have occurred to me as the result of over thirty years of intimate experience of both voluntary and municipal hospitals

(1) I am convinced that in any scheme or "Plan" dealing with the future development of our hospital services in this country, we should place the voluntary hospitals with medical schools attached to them in a category of their own In the event of any further financial assistance being required for such hospitals from public funds, such financial aid should be by means of state grants, and not from the rates of local

authorities. In other words, voluntary hospitals with medical schools attached to them should be regarded as national institutions and not local institutions.

(2) All other voluntary hospitals should be regarded as hospitals providing for the sick of the locality in which they are situated. Of course such a statement must be interpreted broadly. Instances occur to the minds of all of us where the voluntary hospital concerned, although not primarily an institution for the teaching and training of medical undergraduates, is in fact recognised as not only a great teaching centre, particularly for postgraduates, but also a centre to which patients come from all parts of the country. Typical examples are such hospitals as the "National" (Queen Square) or Moorfields. There is much to be said for the inclusion of a careful selection of these in the same category as voluntary hospitals with medical schools attached. However that may be, the broad point I wish to make is that, generally speaking, voluntary hospitals without medical schools attached to them should be regarded as part and parcel of the hospital services of the area of a local authority under the Local Government Act, 1929. Such voluntary hospitals would be closely linked up with the municipal hospitals in the same local-government area They would then be quite properly entitled to financial assistance from the local rates

(3) Regionalisation and decentralisation, or whatever you like to call such schemes, must in my judgment be based either upon a well-defined local-government area, such as a county or a county borough or a combination of them. Any attempt to draft a scheme on the lines of any other geographical area will fail for the following reasons:—

> In recent years many ancillary medical services have been developed in the area of such local authorities—e g., school medical service, tuberculosis, venereal diseases, maternity and child welfare, including midwives, hospital accommodation for infectious diseases, and so forth. I do not see how it would be possible to deal with these services as a constituent portion of a comprehensive scheme or "Plan" unless the scheme or "Plan" is based on a unit, or combination of units, of local-government areas. It must not be forgotten that these medical services are a statutory obligation upon local authorities.
>
> If it is contemplated that in any regionalisation scheme the voluntary hospitals in the area of the scheme shall receive financial grants from the rates, then it seems to me inevitable that any provision made by such voluntary hospitals for the treatment of the sick, &c., must be part and parcel of the arrangements made for such persons by the authority contributing the grant from local rates. In other words, the regionalisation scheme must conform with the duties and responsibilities of local authorities under the Local Government Act, 1929.

Finally, I should hope that in any scheme for the further development and better coördination of our hospital services, voluntary and municipal, every effort should be made to combine under one direction the prevention and treatment of disease, the provision of a much wider field for medical education, undergraduate and postgraduate, and last, but by no means least, ample facilities for the advancement of medical science by means of the encouragement of research. The immense advantages to be gained from such a combination under unit control have to be experienced in order to be fully appreciated They were well on the way to realisation in the L C C public health department when war came upon us in September.

I am, Sir, yours faithfully.

20 Egerton Gardens, S W 3 FREDERICK MENZIES

SIR,—The volume of correspondence which has been inspired by the masterly contribution of your special commissioner is an indication of the importance and also the complexity of the problems which confront the medical profession. The time chosen for the presentation of the plan is highly opportune. An appreciation of our present voluntary lack of system may serve to give direction to some of the drastic and costly measures which are being taken in the present emergency without interfering with their main object of giving the best possible service to the casualties of war.

Before we can discuss with profit such important questions as the location, staffing, finance and control of the hospitals of the future, it would appear to be essential that there should be created some central *thinking* agency which might later become the directing body if its proposals could command general assent. A central nervous system of this sort which could think and also apprehend stimuli from different regions and organs might well be modelled upon the existing organisation which obtains and distributes and advises upon the use of national radium, with a National Hospital Trust to evolve a scheme of finance and a National Hospital Commission to advise and coördinate the regional hospital councils. These regional councils would have a considerable measure of autonomy and might be a first step in breaking down the artificial barriers which are created by the dual system of voluntary and local authority control.

If a large-scale experiment is desired to try out such a scheme of central guidance and regional council, Scotland presents itself as ideal for the purpose with its very unequal distribution of population, wide range of economic grades, important medical schools, large voluntary and municipal hospitals and all the problems of transport by rail, road, sea and air. In addition it has a Department of Health which has successfully solved a very difficult problem by its Highlands and Islands medical service and could be trusted to make a valuable contribution in any national scheme.

With the evolution of an appropriate scheme in each region under the general advisory supervision of the hospital commission, the hospital trust would be concerned with the allocation of central funds to regions in which special investigative work deserved encouragement or where poverty made a satisfactory service upon purely regional contributions impossible. The whole conception would be further clarified if one other major decision could be made at an early stage. We must decide upon the standard of service which the medical profession as a whole intends to offer to the nation in the difficult years which lie ahead Until this issue is settled, all decisions and expressions of opinion can only be conditional By the word *standard* we do not suggest any difference in quality of work or sense of duty on the part of the individual doctor, practitioner or specialist, but rather the scope of the organisation of which he forms a part The efficiency and discipline of the crew of the humble minesweeper may be as fine as that of the great battleship but the size and power and value of the two units are widely different. Do we intend to continue on the useful but subordinate basis of the small ship, with our activities largely controlled by the politician, the lay hospital board, the municipal committee and the friendly society, or do we intend to take ourselves at the highest level and exert an influence of the battleship standard upon national health and national welfare as do our legal brethren in their sphere of action?

A contemplation of the life and work and teaching of the master intellect whose death we mourn at this time compels one to realise that the seemingly inexplicable mass movements with their recurring upheavals and catastrophic violence are capable of the essential primary analysis which must precede the attainment of reasonable stability in national and international affairs In his sociological contributions, Mr Wilfred Trotter did not follow a personal diversion but realised in its fulness the rôle of the medical scientist by touching upon life at every point and exposing the dangers of ignorance and insincerity and false reasoning which give the charlatan his opportunity and permit him to control the destinies of millions of his fellow men If this wide view be proffered as a part of our national reconstruction, it will only be accepted if the medical profession has successfully placed its own house in order If it be not proffered or not accepted, the house will still be the more comfortable and efficient by reason of its orderliness.

I am, Sir, yours faithfully,

Edinburgh J J M SHAW

SIR,—Congratulations to you and your commissioner for having the courage to say that all is not well with British medicine and for producing a tentative plan for its improvement Medicine is changing by gradual evolution There is a continually increasing number of investigations and a consequent rising cost per patient, whether this cost be borne by the patient himself or by the hospital he consults The voluntary hospitals, endowed by charity for treating the sick poor, are for financial reasons becoming more and more hospitals for the middle-class as well Middle-class workers, ever increasing in numbers, can and do afford a consultant's fee But they cannot face a long illness in an efficient and therefore expensive nursing-home, in health matters all men feel they have right to the best opinion and attention, and the vast majority know they can only afford the best care by going to a hospital for it The hospitals have allowed the admission of middle class patients, not only from motives of pity, but also because they cannot afford to pay the whole cost of all their patients, even the sums available from the present insurance schemes go only a short way towards it To assess the need for financial reorganisation of the voluntary hospitals, we must have facts rather than listen to opinions, somehow we must meet the increasing cost per patient, while at the same time expanding our service and improving our efficiency

As to whether consulting practice is moribund or not, the opinion of general practitioners is a sure guide. Questioned as to what sort of consultants they want, they give two types of answer Some want men of wide experience to help them in their difficulties, others say that they and their patients demand only specialists Both groups are unanimous in their need for a higher opinion on certain occasions General consultants, specialists, consultant clinics all have their advocates, but some form of consultant is needed by all who practise medicine, from the youngest G P to the most experienced London honorary The question is not whether there should be consultants, but how much and in what way the community is to pay for them, and how their services are best to be made available.

The controversy of the whole time salaried versus the part time honorary hospital staff is a part of the consultant question Temperamentally men are very diverse Some members of the consultant ranks faced with a family, vast overhead expenses, and an ever-diminishing fraction of their time available for original work, would welcome an assured if moderate income with the prospect of a pension Freedom from financial worry would allow them to apply all their energies to their hospitals, their students, and the advance of medicine, their competitive spirit and frank criticism would be used in scientific matters On the other hand, many delight in the open struggle, in the competition with their fellow men, in which their success is measured tangibly by size of income For them, because of the present trends of medical practice, the chance of making large incomes must gradually diminish, it will become increasingly difficult to provide their own pension, or even to cover the expenses which such conventions as a Harley Street address impose upon them

Before deciding to increase the number of salaried senior men in the teaching hospitals, various bogies must be laid First, that a sense of security destroys the spirit of inquiry and the urge to advance medicine Second, that a whole-time officer fails to develop or loses that personality so essential in medicine Third, that the strong personal relations between hospital officers and patients and between general practitioners and members of hospital staffs, so characteristic of British medicine, will disappear if the consultant holds a whole-time salaried post The experience of whole-time units in the voluntary hospitals is that such fears are groundless, the answer to these bogies depends ultimately on the personality of the members of the staff, not on their organisation

After the war the world will not be the same place. All men will be poorer, all incomes lower The future efficiency of medicine depends on providing the opportunity for all classes to receive the best opinions and treatment regardless of their incomes If the best brains are to be attracted to the practice, the teaching and the advance of medicine, radical financial reorganisation will be necessary, including the expansion of provident schemes and increasing government support Let the medical profession plan for the future, let the younger members who will then be in the forefront evolve a practical scheme to increase their own efficiency and improve the medical services of the country, let them enlist the help of many experts, old and young, administrative, technical, financial Only by making us think and plan will the disruption of war have been useful to us

I am, Sir, yours faithfully,

Queen Anne Street, W 1 H K GOADBY

*** We have invited Lord Horder to sum up this correspondence —ED L

STORAGE OF TRANSFUSION PLASMA

SIR,—I was very interested in the paper by Dr Knott and Dr Koemer in THE LANCET of Nov 18 There is probably a great future for plasma in the treatment of shock, for the reasons they give In pure shock, intravenous saline is discredited, gum-saline is usually ineffective, and blood-transfusion may be dangerous, owing to the high viscosity of the concentrated blood which is sometimes found in the patient's reduced circulation By giving plasma one is replacing part of what has been lost from the circulation, and one is administering a physiological solution which is likely to remain longer in circulation than any substitutes such as gum saline

May I suggest that the two problems of agglutination in the recipient and fibrin deposits in the storage bottle could possibly be solved as follows? No time should be lost in cross matching or estimations of agglutination titre when urgent treatment is required An agglutinin free plasma would therefore be distinctly advantageous However, unless some agglutinin absorption plan could be devised, it would be impossible to obtain such plasma from bottles of group O blood Despite their relative rarity, there must have been many thousands of group AB (group 1) volunteer donors in recent months who were anxious to help, and who were disappointed by being told that their blood was unsuitable for transfusion, because only group O (group 4) blood was required. It would not be difficult to collect large numbers of these volunteers whose names are no doubt recorded in the centres, and utilise their agglutinin-free plasma Repeated filtration to get rid of fibrin deposits would appear to be unnecessary if a filter were incorporated in the apparatus for giving the blood—as is in fact done in the Army blood-transfusion service. If some such modifications as these can be made, there seems no reason why considerable stocks of "universal" plasma should not be available for treatment of shock cases in the war zone when serious hostilities begin.

I am, Sir, yours faithfully,

B.E F. ADRIAN C. KANAAR.

DENMARK'S DIETETIC DILEMMAS

SIR,—May the "Something between Cassandra and Joan of Arc," which is me, be allowed to correct a little misunderstanding of your Danish correspondent (Nov. 18, p. 1086). When he implies that margarine, bacon, sugar and flour are the causes of the known Danish obesity he is correct except for bacon, which is totally innocent Bacon is made for export and is practically not to be had in Denmark unless it is reimported The fat eaten in Denmark is (1) margarine (ca. 20 kg. per person and year); (2) the flesh of old sows, too fat for the English taste—i e, practically without albumin (this fat is the least valuable part of the pig, not fit for export); (3) butter. In a later paper I intend to point out the connexion between the fat-consumption in Denmark (the highest of all countries) and the high morbidity and mortality of certain diseases, especially cholelithiasis, which has a far higher incidence in Denmark than in all other countries. The high morbidity of gall-stone, diabetes and cancer coincides with a very low mortality of infectious diseases, caused by the rather high hygienic standard of Denmark.

I am, Sir, yours faithfully,

Copenhagen. JOHANNE CHRISTIANSEN.

INTERRUPTION OF MILK AND MEAL SCHEMES

SIR,—Before the outbreak of war there existed in Glasgow and elsewhere comprehensive schemes for supplying necessitous children with free meals, and a large number of children in the schools with a third of a pint of milk daily at the price of ½d., the necessitous children receiving this for nothing. The benefits to health accruing from these schemes were acknowledged by all medical authorities Since the war the children have, in many cases, not been attending the schools through which the schemes were operated; as a result, the whole organisation of distribution has fallen into abeyance. The evacuated children are receiving nothing by way of free or cheap milk unless some welfare committee in the reception area decides to undertake the provision of it So long as there is no question of a lack of food, arrangements should be made between the authorities in the evacuation and the receiving areas to ensure the continued working of these schemes It does not take long for any improvement due to better nutrition to disappear, and the end result of a long period without the extra food may prove more costly to the nation than would the continuance of the supply. In addition to the milk schemes for school-children, there are also in existence schemes for the provision of free or cheap milk to pregnant and nursing mothers, but here again the schemes are not being operated as efficiently or as comprehensively as before. Is it a case of "women and children last" in this war?

I am, Sir, yours faithfully,

Glasgow M B., Ch B.

FIRST-AID POST DOCTORS

SIR,—One can't congratulate the B M.A or the Minister of Health on the new scale and conditions for doctors at first-aid posts The doctor will now receive 4s. 9¾d per hour for the two hours required of him three times a week. For this he will have to (*a*) train the personnel, (*b*) supervise the voluntary staff and nurses, (*c*) carry out collective training, (*d*) be responsible for the stores, (*e*) be responsible for the general maintenance of the post, (*f*) be responsible for correspondence on administrative matters concerned with the post and thus become a temporary officer *under* the local authority, and (*g*) attend during an actual raid. As regards (*a*) this has already been done by lecturers under the B R C.S. and St. John Ambulance and many practices have been carried out not only by mock raids but also at the posts. Some doctors have been appointed who have never given a lecture before and few have had the required practice themselves. As regards (*b*) this has hitherto been carried out by specially qualified persons either from the associations or the local authority. Both training and supervision of staff have further been under the eye of special A.R P. medical officers who also have had to do with (*c*), (*d*) and (*e*). A former circular threw the responsibility for stores and general maintenance on the local authority, from whose hands these are now taken. This will make for friction. The correspondence in connexion with each post is sometimes enormous, as one who has been dealing with it knows. This is likely to increase with these doctors who are not well up in all the details of government circulars and memos I take it that the lady "officers in charge" of posts will now give up that title and will be called matron of the post or head sister. There has already been a link between the M.O H and the posts, and a harmonious one with the A R P. medical officer and the lady "officers" or matrons at the posts There was no call to disturb the existing conditions

I am, Sir, yours faithfully,

FIRST-AID POST MEDICO.

THE WRITING ON THE WALL

SIR,—My Grains and Scruples which you were kind enough to publish in August of this year drew a prompt rejoinder from my good friend D V H, which need no longer be concealed by the veil of anonymity.

> "Professors do not scruple to mix their grains with spice They write with light abandon of subjects not quite nice—of chamber-pots and bawdy walls, of phallus and of teats, that undergrads may understand dons keep their youthful Witts."

It would nevertheless appear that the subject of lavatory scribblings is of interest to many and I should like to increase the general fund of knowledge by the following contributions from correspondents who had read my remarks

A woman doctor, C C, writes :—

"In my experience of lavatories in girls' schools, lavatories in women's colleges and public lavatories for ladies, I have never seen 'the writing on the wall.'"

On the other hand, G B K sends the following (undated) extract from the *West Australian* —

"Endless expense has to be met in removing remarks from the walls and fittings in train and station lavatories A railway detective said yesterday that the most obscene drawings and writings were those found on the walls of ladies' waiting and retiring rooms on station platforms Women and girls were apparently responsible, as many of the obscenities were written or drawn with rouge and lipstick"

As far as concerns women's lavatories in England, private conversations leave little doubt that at present C C is right This is confirmed by another lay correspondent, A.B L, who describes himself as an amateur but appears to have pursued the topic with some seriousness

"First, as to the incidence of these wall writings My wife assures me that pencillings on the walls of women's lavatories are practically non-existent As to men's lavatories I suspect a strong economic factor—even stronger than the colour of the paint on wall or door Lavatory interiors are most highly decorated when the coin controlled lock is habitually out of order, so that would-be scribes can enter without charge A certain cubicle in Barking station has a lock which is permanently defective, and the woodwork there, although mostly painted dark brown, is completely covered with sexual representations The presence of an attendant in the lavatory seems to act as a deterrent, I put this down to the fact that free entry is no longer possible

"As to the subject matter of the inscriptions, besides the invitations to homosexuality that you mention, they range over the whole gamut of perversions dealt with by Krafft-Ebing—masturbation, masochism, sadism, cunnilingus and its opposite, and the rest The wall of a certain lavatory at the former Aldgate East station was covered with long and detailed accounts of perverse practices and experiences of various kinds including, I remember, a slave masochist who 'wanted more' and a gentleman who wore his sister's undergarments Then there are certain short verses, about cleanliness and about wall writing, which I have seen in lavatories in Richmond (Yorks), Ramsgate (Kent), and Bournemouth (Hants) The subject is indeed fascinating and sufficient data might be compiled to make up an interesting monograph There is even a suggested reason for the immunity of the walls of women's lavatories"

Perhaps one day he will publish his monograph and not leave us with an unanswered question in the last sentence

I am, Sir, yours faithfully,

Doctor Don

OBITUARY

RALPH STRANSHAM OLDHAM

OBE, MD DUBL

Dr Oldham, a principal medical officer of the Ministry of Pensions, who died on Nov 26 after a hort illness at the age of 59, was educated at mmanuel College, Cambridge, and Trinity College, ublin Before the last war he was in private ractice at Blackpool, and was also honorary medical fficer to the X-ray department of the Victoria Hospital here After serving throughout the war he joined, in 919, the medical services of the Ministry of Pensions n which he became a P.M O in 1928 In 1932 his ervices were recognised when he was made an O B E ossessed of a keen intellect, which scorned subterfuge, is work was characterised by a somewhat stern fficiency, and Oldham as a man was apt to mask his nner kindliness by an aloofness of demeanour and ungency of comment which made him difficult to now But those to whom he gave his friendship ealised his sensitive spirit which shrank from casual ontacts To them he revealed a broad humanity and atural charm by which he will long be affectionately emembered

OSCAR BERNHARD

MD BERNE, PHD

In the death of Dr Bernhard of St Moritz the Swiss medical profession has lost a vigorous mind and a forceful personality Born in Samaden in 1861, the son of the local chemist, he got his schooling at Coire and studied medicine in Zurich, Heidelberg and Berne, where Kocher was then at the height of his fame Returning with a bent for surgery to the Engadine, where there were then no hospitals and no railways, he built up a large surgical practice under trying conditions until under his stimulus in 1898 a fine district hospital was opened in Samaden and Bernhard became its chief surgeon There he began to treat surgical tuberculosis and chronic septic cases with sun's rays, which have remarkable power at 5000 feet above sea-level

The purity of the air was such that he was able largely to dispense with dressings in all his surgical work He constantly brought his method up to date and published his results in "Light Treatment in Surgery" (1917), of which an English edition appeared in 1926 Dr Bernhard's other activity was the organisation of first-aid for alpine accidents, and at St Moritz, where he had a private clinic, he specialised in the treatment of winter-sport injuries In his spare time he studied numismatics and he wrote a book on Greek and Roman coins in relation to the history of medicine For this the University of Berne conferred on him in 1931 the degree of Ph D

ANTON von EISELSBERG

Brief reference has been made[1] to the death from accident of Prof A von Eiselsberg who occupied the chair of surgery in Vienna for some 30 years In an appreciation of his career in a German journal Dr Breitner of Innsbruck describes Eiselsberg as a restless searcher after truth rather than a mere skilful operator The secret of his success in advancing our knowledge of the thyroid gland and of the causes of postoperative tetany was his genius for illuminating a problem from many angles It was natural enough for a pupil of Billroth to take a special interest in abdominal surgery, a subject to whose technical problems Eiselsberg contributed much The same was true of the surgery of the nervous system and plastic surgery As a teacher he had the gift of inspiring enthusiasm, and as a clinician he earned the affectionate gratitude of his patients Many honours were bestowed on him both at home and abroad, and the Royal Society of Medicine showed its appreciation of him by electing him an honorary fellow

Dr Martin Randall who died at Haslemere on Dec 7, aged 71, was a fellow of University College, London After qualifying in 1892 he filled house appointments at U C H, the General Lying in Hospital and the General Hospital at Bristol He qualified for a gold medal with his London M D thesis in 1894 and took his F R C S in the following year, settling in general practice in Wimbledon He early became associated with its cottage hospital, first as medical officer and later as surgeon, noting many interesting cases in the medical press

---

[1] *Lancet* Nov 4 p 990

. . . . IN ENGLAND—NOW

(FROM OUR PERIPATETIC CORRESPONDENTS)

"HERE we are again"—our general hospitals in Liverpool back to their normal number of occupied beds. War or no war, men and women get their appendix troubles, their malignant disease, their digestive lesions, their thyrotoxicosis, their babies (*plus ça change, plus c'est la même chose*). Yet neither hospital nor its doctors and nurses are quite as they were, though they are occupied with the old sort of work which is always coming to hand. The sandbags outside have changed the old familiar ugly contour, and inside there is an "atmosphere." We are on the alert, with that slight tenseness which even the old cricketer feels as he sits with his pads on, waiting to go in to bat when the next wicket falls. There he is, lolling in the sun with eyes half closed and apparently not bothering about the game; but if a wicket does fall, he is ready. He has had a good look at the fast bowler's in-swinger to that close circle of short legs, he has his plans for dealing with it, and he thinks that he can spot the googly of the spin merchant at the other end; for he has not really been inattentive during that wait on the pavilion balcony (maybe knitting a khaki scarf). When he does have to go out into the middle, he will bat all the better for that anticipatory tension, that slight straining at the leash

Beds for tuberculous cases are again becoming available, also. The municipality is opening up a larger proportion of their prewar provision, but only (so it is rumoured) for advanced sputum-positive cases. The little hospital for consumption, which though evacuated at the outbreak of war carried on its outpatient clinics, has now reopened its wards. Reasonably early cases, for whom active treatment is desirable and greatly worth while, will have to find accommodation somewhere; for prevention, like patriotism, is not enough. Already since the war, the general hospitals have encountered more patients with phthisis than they have seen for years, diagnosed them and instituted some form of treatment; indeed, one of our group, I am told, has even replaced its old museum piece by a modern type of A.P. apparatus.

We expect to be something like our full normal selves by the end of the financial year. On April 5, 1940, the Grand National will be run at Aintree. The date is rather later than usual, but I imagine that the authorities have in mind the kindly thought of giving us the chance to tot up and make sure whether we have even a shirt left to put on the horses.

* * *

The impenetrability of the blackout curtains in my bedroom has provided me with a new delight. One morning, when I awoke, I saw on the wall the shadow of a tree slightly stirring in the breeze. Even in my semi-stupor this puzzled me, and as consciousness gradually returned I realised that the tree was upside down, and next that all round the room were images of roofs and chimney-pots from over the way, and all upside down. The truth suddenly dawned on me. Camera obscura and the pinpoint cameras of my boyhood! Sure enough, there was a gap at the top of the curtains where they should have met, a gap no larger than the nail on my little finger. Later, in the afternoon, in the bright sunshine, I repeated the experiment, drawing the curtains except for a tiny aperture, and on the opposite wall appeared a bright image of the sun, with clouds scudding over its face, and the whole array of roofs, gables, chimney-pots, and tree-tops, all of them in inverse order from right to left, and all of them upside down—an appropriate symbol in this topsy-turvy world.

* * *

We went down to Brixton and had lunch there—collops, bread and cheese and beer—in one of the improved public-houses where a city clerk or a shop manager can take his wife without loss of caste. There is a large saloon with a good bar downstairs and upstairs a first-rate restaurant. The improvement in this type of house is great, and with the blackout they are doing a roaring trade every evening. For those not yet arrived at an age when a chat in company with friends over a glass or two of beer is an entertainment, the darkening of the streets is a serious loss. It was not only in the poorest districts that a walk after the evening meal is a usual occupation—looking in the shop windows, meeting friends and chatting first with one group and then with another. Of course it was unavailable in wet weather; but then the weather is never always wet and one doesn't mind staying in on a wet evening, if one can get out on fine ones. Now it is always black.

After lunch we went into Woolworth's. It is much bigger than the one in our High Street and we revelled in it. It was the slack time of day, but by 1.30 P.M. it was already filling up, and in another hour was probably packed so tight that you would only be able to move sideways along the aisles between the shoppers. Gas-masks make a bit of difference to room in Woolworth's. We twice each lost the other, and our purchases were as follows: ¼ lb. liquorice allsorts (the missis's latest), 3*d.*; ¼ lb. liquorice plain, 3*d.* (pure sentiment on my part, a memory of childhood—I hate the stuff today, but it will keep till we see the grandchildren); ¼ lb. roasted pea-nuts, 2*d.* (at the big Woolworth's they also have roasted mixed nuts at 6*d.* which we cannot get in our High Street; we looked at them like children in a pastry-cook's but came to the conclusion they were not worth the extra 4*d.*); a doormat, 6*d.* (to wipe our feet when coming in from the garden); an aluminium saucepan, 6*d.* (as a night-starvation food heater); a scrap-book, 6*d* (she has one, so why shouldn't I, for the war-time? I give myself two pages before I drop it); a packet of grease-proof paper, 3*d.*; another ¼ lb. pea-nuts, 2*d.* (I had nearly finished the first); 2 refills of shaving soap, 6*d* (no comment); a combined comb and hair-curler, 6*d.* (a present from me to her—they were selling like hot cakes) another ¼ lb. of pea-nuts, 2*d.* (in case we ran out next day, Sunday); total expenditure, 3*s.* 9*d.* It is a place that runs away with the money; but some of the displays are very remarkable. There were artificial flowers that one almost felt willing to use for table decorations, and laid out on plush under a light there was a necklace that looked like moonstones and that made us feel the sixpenny rule must apply to each bead; but we found that it was for the whole chain. Prices are going up. There were no sardines at threepence, but in their place at that price were tins of minute herrings. We bought one and tried it for breakfast. They were excellent, so far that is as herrings can ever be excellent; for the human race in respect to herrings is divided into two classes—those to whom they are the finest of all fish rivalling in flavour the salmon and the sole and surpassing all meats in the variety whereby they can be served, and those to whom they are so physiologically nauseating that to be in the presence of the smell is a hardship. This last is sometimes not appreciated by the eat-more-herrings brigade.

But it is the paper shortage that is most likely to be felt by every member of the community. Already pads of scribbling paper are much smaller for the sixpence and packets contain fewer envelopes. The rise in price is thus masked and the casual housekeeper does not notice it until she picks up a fourpenny roll of lavatory paper, when her arm jumps up into the air from its unexpected lightness.

ANTISPASMODIC—If you indulge in detective fiction of the lightest possible vein, Josephine Bell's little fantasy "From Natural Causes" (Longmans, Green and Co. Pp 269. 7*s* 6*d*) makes easy reading. It relies on method for its mystery, and is therefore simply constructed, requiring little unweaving. The setting is medical and creditably accurate.

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By MEDICUS, M P

THE debate on the Address last week was discursive to some extent as such debates always tend to be, but on the Tuesday it was wound up by the Minister of Health in a speech in which he gave the House some new and interesting information Lord Nuffield has offered to the Government through the Minister of Health one million ordinary shares in Morris Motors Limited as a gift to a central fund for the coordination of hospital finance and policy in the provinces A board of trustees has been set up, and their duty will be to see that this fund is applied to the organisation of "the proper relationship of the voluntary hospital to the municipal hospital and the coordination of the hospital system as a whole," to use the Minister's words Under war conditions the tendency towards a civil service organisation of the medical profession and the hospital and allied institutions is very strong This gift will go a long way towards securing that any move in that direction will not be undertaken without taking full advantage of the good qualities of both municipal and voluntary organisations and securing for voluntary and teaching hospitals that place in the future organisation which their past contributions to the relief of suffering and to medical science deserve

The Minister did not make it clear whether the scheme applies to Scotland as well as to England and Wales, but it was generally assumed in the House that it did so

• • •

Mr Elliot announced at an earlier stage of his speech that he and the President of the Board of Education "hoped shortly to complete arrangements for a far greater concentration of medical effort on the school children than ever before" The Minister has been looking at decontamination posts, with their neat arrays of showers for washing, with rooms for dressing and undressing, and wants to beat the A R P apparatus of war into the school bath of peace, at least until such time as gas contaminated cases arrive The suggestion that the medical services for children shall be made more efficient in the near future, instead of less, met a sympathetic reception from the House If the story of the evacuation of children has revealed the great need of baths it will be at least some consolation if they are found ready provided in the decontamination centres There is a strong desire on all sides of the House that the bad conditions revealed so dramatically to the ordinary layman by evacuation shall be substantially, and as rapidly as possible, ameliorated

In the course of this speech Mr Elliot revealed the great improvements in public health which have taken place since the end of the 1914–18 war In 1919 the general death-rate was 13 8 per 1000, while now it is 11 6 The tuberculosis death rate was 1261 per million against 602 per million now (But we do not yet know how many new cases will arise under war conditions which involve considerable clearances from tuberculosis sanatoria) The Minister put health statistics in another way "Our system had given us a lower infantile mortality than Germany, a lower maternal mortality than Germany, it had given us not only a freer but a stronger people than Germany" We have built over 4 million houses, by private and municipal and government effort, since the other war, and we have embarked on the fifth million, but that has been held up

Other points which were mentioned is that our social services, which are still increasing and improving, cost about £540 millions in a year, but the House is uneasy as to what will happen to these social services if war continues The war up to date has been called a fortress war, a war of siege How tight is that siege to be? What amount of money shall we require over and above what we are already spending? If further demands come, will the social services suffer? These questions are at the back of many members' minds

In another part of Mr Elliot's speech he referred to a survey made of over 1000 families throughout Great Britain, in which Sir John Orr collaborated These studies show that in the last 3 to 5 years there has been a notable increase in the consumption of the most nutritious foods Put in percentages of certain of the constituents, there has been an increase of 33 per cent in the consumption of calcium, 20 per cent in the consumption of iron, and 160 per cent in the consumption of vitamin A

It was after giving the general survey that the Minister announced Lord Nuffield's gift, and linked this with the need of undertaking such planning as we could while realising that planning in full detail was not possible The motto of this war is not to be "business as usual" but "planning for the future"

• • •

Wednesday gave us another of Mr Churchill's breezy statements, after which the debate moved on another stage During this stage a suggestion was made that in order to equalise the burden of active fighting services the classes from 21 upwards should not be called seriatim, but there should be an attempt made to pick out men of the classes between 21 and 41 so that all sections of the community could serve, and so that a representative number of the youth of the nation would remain after the war to be the fathers and mothers of a new generation How far the war will involve women's active service cannot yet be estimated There are many *x*s in the problem of after the war, so let us keep as much of our youth as we can Wednesday was the last day of the 3-day parliamentary week and ended in a debate on the restrictions which are hampering trade The House was not too reassured by the Government's replies But earlier in the day the Prime Minister had announced that the House would adjourn on Thursday, Dec 14, and reassemble on Tuesday, Jan 16 This is welcomed on all sides, as the usual summer recess was very much shortened and the House met in August, since when it has been inundated with business

The House and ministers are stale and need a holiday, which, however, ministers will not get in any full sense But a break will be useful and the New Year may bring a new perspective

FROM THE PRESS GALLERY

Planning for the Future

IN the House of Commons on Dec 5 Mr ARTHUR GREENWOOD, *in moving an amendment to the address* in reply to the King's Speech said that it was apparently the Prime Minister's view that they must wait until the war was over before they could begin to think about the future He urged that during the war the obvious social injustices ought to be remedied —Sir SAMUEL HOARE Lord Privy Seal, agreed with Mr Greenwood that if we did not win the peace we should not win the war, but he would prefer to say that we could not win the peace unless we won the war. Our objective should be to win both. The Government was just as anxious as Mr. Greenwood to have plans ready for peace when it came. But he did not believe that when they were so completely concentrating on the war they could give the full attention to peace problems which Mr. Greenwood seemed to desire. It was difficult to make precise plans when nobody could say what would be the conditions at the end of the war, except that the world would be much poorer than it was today.

FOR AND AGAINST STATE MEDICAL SERVICE

Dr EDITH SUMMERSKILL wanted the Ministry of Health to consider what they were going to do with the vast reorganisation of medical services which had come about during the last three months She asked the ministry to consider instituting a state medical service which would eliminate private profit from the treatment of disease. The framework of such a service had been provided during the present war. We had for the first time unified control and state remuneration of doctors. Doctors were giving full-time service at their hospitals, instead of rushing to and fro between the hospitals and their private practice. For the first time young doctors in hospitals were being paid an adequate salary instead of the £100 or £150 they would get as house officers in voluntary hospitals If the state had decided that this was the right way to treat civilian casualties in war-time, why not treat civilians in the same way in peace-time ? There was a new school of thought in medicine which believed that the voluntary-hospital system was out of date and had completely failed Sentiment should not blind them to realities. Why should the voluntary hospitals have to finance themselves by going round cap in hand ? On the present system they could not afford the finest equipment, and their medical staff, who should be adequately remunerated, had somehow to collect enough money in their private practices to pay for their commitments. A brilliant man might have to struggle until he was nearly 50 before he could get on the staff of a hospital and demand big fees It seemed absurd to tolerate the present outpatient system. Outpatients suffering from serious diseases sat in London voluntary hospitals for five, six or seven hours. The dependents of the workers today had no medical service unless they could pay for it, and the middle classes were given what she considered was often an inferior service. The Minister of Health had a wonderful nucleus on which to work in the machinery of the National Health Insurance Acts, maternity and child-welfare clinics, and the cancer and tuberculosis clinics. Now was the time to plan, because the medical specialists were already being remunerated by the Government. If they all came back to London the specialists would find that they had lost their patients Surely those specialists must find it rather wonderful to be in a hospital, to know that they were economically secure, and were able to follow their particular work, without feeling that later on they would have to hold the pulse of some woman who had nothing wrong with her, except that she had not enough work to do. Under a state medical service doctors for the first time would have an opportunity for post-graduate study. Their hours would be limited and they would be sure of holidays.

Sir FRANCIS FREMANTLE said that the idea of a national medical service was nothing new. The poor-law medical service had always been at the command of every citizen. It was now necessary to link up in an organised scheme the medical services, whether personal or in an institution. The hospitals were now working together much more in the way of a public utility service The King Edward Hospital Fund for London had done a wonderful work during the last 20 years in organising the hospitals on a uniform basis There was also a scheme of Lord Dawson's committee about 17 years ago for organising hospitals in a new way with base hospitals and advance hospitals down to hospitals in the village. That had not been adopted. In the medical professional press the problem had been discussed most violently from both sides. The line advocated by Dr. Summerskill—a definitely socialistic scheme—had called forth vitriolic views in THE LANCET from doctors who saw nothing but harm in it from the point of view of the patients themselves or the advance of the medical profession. If any Government tried to socialize the medical profession they would be undertaking an impossible proposition. What could and must be done was to try to build up the present system. No Government would dare to do away with the voluntary principle and municipalise the whole hospital system. Dr. Summerskill had suggested that under a state medical service the doctors would be delighted to have a definite income, definite hours of work, and definite holidays. If that were so, then God help the patients, because doctors were human ; there were good doctors, bad doctors and indifferent doctors If doctors were under state control they would, as was the case with officials in any walk of life, insist on their rights, duties and privileges, and would feel it was the duty of the authorities to provide for the rest. One could not deal with the life and death questions of medicine in that way. Whatever uniform public system might be established, a large number of people would still prefer to go to their own doctors. These people would make it worth while for doctors to carry on private practices in their own little clinics, which would be private hospitals

THE MINISTER'S REPLY

Mr. ELLIOT, Minister of Health, replying to the debate, said that at this time when we were planning for a three years' war and spending at the rate of £2,400,000,000 a year in the process, when Hitler was compelling the Germans to work longer hours and Goering was telling them that they would have to tighten their belts and would be all the better for it, we were contemplating expansion in our social services They already cost the Exchequer and local authorities over 500 million pounds a year. The money was well invested and had provided an excellent return. In 1919, the general death-rate was 13·8 per 1000 compared with 11·6 today ; the tuberculosis death-rate was 1261 per million compared with 602 today ; the infantile death-rate was 89 per 1000 live births compared with 53 ; the maternal mortality-rate was 4·37 per 1000 live births compared with 3·08 ; and the typhoid death-rate was 16 per million as compared with 3·6 in 1938.

Before this war the national service of midwives set up by the Midwives Act of 1936 was settling down to full-time work, the first steps had been taken to set up the comprehensive arrangements for the treatment of cancer under the Cancer Act of 1939, over four million houses had been built since 1918, and in other social services we were engaged on similar improvements The evacuation scheme caused a good many shocks to the inhabitants of the reception areas We were striving hard to make good come out of evil. He hoped shortly to complete arrangements for a greater concentration of medical effort on the school-children Indeed they had hopes that instead of requisitioning the schools for A R P. posts they might be able to requisition the A R.P. posts for the schools, and to use, for instance, the bathing provision made for decontamination of gas cases to restore to the school-children some of the facilities they had lost

Reference had been made in the debate to the standard of living as revealed for instance in Sir John Orr's book *Food, Health and Income*. As a result of these and other studies, a good deal had been done in supplying free milk or cheap milk, cod-liver oil and other supplements, particularly to children and nursing mothers. There had recently been a further survey of over 1000 families throughout Great Britain in which Sir John Orr had again collaborated. These studies showed that in the last three to five years there had been a notable increase in the consumption of the most nutritious foods During the war our aim must be to keep in working order this vast machine, improving it from time to time as conditions permitted.

After announcing his acceptance of Lord Nuffield's offer of 1,000,000 ordinary shares in Morris Motors Ltd to a central fund for the coordination of hospital finance and policy in the provinces (reported in THE LANCET last week), Mr Elliot said that even in the midst of war they were still able to obtain these princely donations for the purposes which they all desired—namely, the coordination of the hospital system as a whole It would be unfair for him, having asked for the collaboration of all sections of the community, to take advantage of them by imposing upon the medical profession some system with which they were not wholly in agreement

Road Accidents

In the House of Lords on Dec 6 Lord ALNESS called the attention of the Government to the increase in road accidents in recent months In September 1190 and in October 919 people were killed on the roads That was an increase of 71 per cent over the figures for the corresponding two months of 1938, which were respectively 554 and 641 More than half the casualties befel adult pedestrians and a large proportion of these were killed during the blackout period The National Safety First Association had pointed out that if this rate went on for three years the number of deaths would be 40,000, the equivalent of an entire army corps —Earl DE LA WARR, President of the Board of Education, said that these appalling figures were perfectly accurate The only small comfort to be derived from them was that there was no substantial increase in the number of children under 15 killed The Government were experimenting with various forms of lighting Every attempt should be made to bring the seriousness of the situation before the public, and the Minister of Transport was arranging for broadcasts on road safety in the blackout Ultimately the solution must come from the action of individuals, whether pedestrians, cyclists or motorists —Lord ALNESS said he was not at all satisfied that the Government's plans were adequate to deal with a situation so tremendously serious

Postponement of Legislation

In the House of Commons on Dec 6 Mr COLVILLE, Secretary of State for Scotland, moved the second reading of the Postponement of Enactments (Miscellaneous Provisions) Bill, which would postpone the operation of certain acts which were passed through Parliament earlier this year, and which would have come into operation on Jan 1 next He assured the House that the Government were anxious that there should be no further delay in bringing the acts into operation than was warranted by the circumstances Provision was made for the postponement of the Adoption of Children (Regulation) Act 1939, the Marriage (Scotland) Act 1939 and the House to House Collections Act 1939

QUESTION TIME

Salaries of Hospital Emergency Officers

Replying to a question by Sir ALFRED KNOX asking for a list of the appointments with a salary of £1000 a year and over that had been made by the various ministries from the declaration of war till the end of October of persons not already serving in the Civil Service, Captain CROOKSHANK, financial secretary to the Treasury, gave the following details regarding the health departments

Hospital Emergency Service

		£
Ministry of Health	11 consultant advisers	1400
	1 assistant consultant adviser	1200
	1 medical superintendent	1200
	19 group officers	1300
	1 deputy group officer	1000
Department of Health for Scotland	3 surgical directors	1300
	1 visiting physician and general director of medical organisation for Western Scotland	1300

Medical Classification of Recruits

Mr RHYS DAVIES asked the Minister of Labour and National Service whether doctors who conducted examinations under the Military Service Act were familiar with the training given in the forces to the men they examined, and, if not, would he take steps to see that all members of medical boards were invited to witness such training so that they might relate their examinations to what was expected of the men later —Mr ERNEST BROWN replied The classification of men examined by medical boards in the categories specified in the National Service (Armed Forces) (Miscellaneous) Regulations, 1939, is based on medical grounds, and it is for the military authorities to determine the kind of service for which men so classified are suitable and to post them accordingly In the circumstances, I think it unnecessary to adopt the suggestion in the last part of the question, even if it were practicable to do so

Mr DAVIES Is the Minister aware that youths are often passed for military service by medical officers who in the opinion of their private doctors and in the opinion of an average layman are totally unfit to be sent for training of this kind ?—Mr BROWN There are cases which have been brought to notice where re examination has taken place But I was asked to adopt another system and I would like to inform the hon member that that system was adopted in the last war, was proved ineffective and was abandoned

Venereal Disease

Captain ELLISTON asked the Minister of Health whether extended arrangements were being made for the treatment of contagious diseases occurring in the civil population in the neighbourhood of military encampments and munition works —Mr ELLIOT replied The position is under review, and I propose shortly to issue a circular to the responsible local authorities on the matter

Captain ELLISTON asked whether, in view of the heavy incidence of contagious diseases during the last war, he would secure the support of the naval, military and air force authorities for the educational lectures and films offered by the British Social Hygiene Council for the instruction of the civilian and service populations —Mr ELLIOT, Minister of Health, replied I will bring the suggestion to the notice of my colleagues

Vaccination and Inoculation of Soldiers

Mr LEACH asked the Secretary of State for War whether, in view of the fact that for the duration of the war, vaccination and inoculation were voluntary operations for all soldiers, he would abolish the recruiting regulation which forbids the enlistment of volunteers for the Regular Army who declined to promise to be vaccinated.—Mr HORE BELISHA replied No, sir, my medical advisers are not prepared to make this recommendation

Treatment at First-aid Posts

Mr GROVES asked the Minister of Health how he reconciled the instructions that the seriously injured were to be taken direct to hospitals and not to first aid posts with the terms of memo E.M S 4 issued by his department —Mr ELLIOT replied Although the first aid posts are intended primarily for the lightly injured, it is recognised that some of the more serious cases may require early treatment at first aid posts in certain circumstances for example, if the nearest casualty receiving hospital is much farther away than the first aid post and the patient appears to require immediate treatment This is indicated in the opening paragraph of E.M S memo No 4

Anglo-French Ambulance Corps

Mr KEELING asked the Home Secretary whether he was aware that the promoter of the Anglo-French Ambulance Corps, which was appealing for funds, was Mr James Hargreaves Dickinson, who, in the last war inaugurated the French Relief Fund which made unauthorised use of the names of prominent persons in this country and in France and was closed down, and whether he would expedite the introduction of a War Charities Bill which would enable the police to prevent appeals to the public except after official investigation and approval.—Sir JOHN ANDERSON replied. I was not aware of the circumstances to which my hon. friend refers The question of introducing legislation for the control of war charities is already under consideration

Children in Evacuation Areas

Mr. HAROLD MACMILLAN asked the Parliamentary Secretary to the Board of Education what steps were being taken to provide medical services for children in evacuation areas —Mr LINDSAY replied: In circular 1479 of Sept 29 and circular 1487 of Nov. 23 the board emphasised the importance of maintaining the health of the children left in the evacuation areas and of resuming the school medical services for these children, and they propose shortly to issue a comprehensive circular setting out in more detail the action which appears to be needed

Dental Treatment for Evacuees

Mr ALFRED EDWARDS asked the Minister of Health if the medical treatment referred to in Ministry of Health circular 1882 included dental treatment—namely, extraction —Mr. ELLIOT replied Dental treatment falls within the scope of the health services which local authorities in receiving areas have been urged to extend to members of the evacuated priority classes. In addition, the Board of Education have asked local education authorities in a recent circular to make special arrangements, where necessary, for emergency dental treatment including extraction for school-children.

Casualty Evacuation Trains

Sir ALFRED KNOX asked the Minister if he was aware that 32 trains, each with eight officials of the St John Ambulance Association, were at present standing idle; what was the weekly cost of these officials, and why the train and the personnel could not be assembled quickly in case of an emergency —Mr ELLIOT replied: The casualty evacuation trains, which, owing to the course the war has taken, have happily not been used to a great extent, have hitherto numbered 28, apart from two in Scotland They are now being reduced to 18 The weekly cost of the orderlies averages about £26 per train The mobility of the trains and the need for keeping them and their equipment in constant readiness for immediate service, if required, make it necessary to keep trains and staff continually in commission

Progress of Camps Scheme

Mr CREECH JONES asked the Minister how many camps had now been completed, how many were in occupation and by whom, how many were in process of erection and how many waited to be started, and what was the number and composition of the staff of the Camps Corporation —Mr ELLIOT replied Six camps have already been completed, three more will be completed by the middle of December and four more before the end of the year A further seventeen are in an advanced stage of construction and one is on the point of being started, making a total of thirty-one camps Two camps are in occupation—one temporarily for a limited period by a part of the women staff of the Bank of England and one by handicapped children from London. The staff of the Camps Corporation consists of the managing director, his private secretary, the secretary of the corporation, a book-keeper, one shorthand-typist, and two clerks—a total of seven persons

L.C.C Cleansing Stations

Mr MACMILLAN asked the Minister how many adult cleansing stations and how many children's cleansing stations in the London County Council area were open now —Mr ELLIOT replied I am informed that in the L.C C area there are now open two cleansing stations for adults only, eleven for children only and twenty-one for both adults and children

Health in Munition Factories

Mr. DAVID ADAMS asked the Postmaster General, as representing the Lord President of the Council, what observations the Industrial Health Research Board was now carrying out with a view to ensuring that the production of war materials would not, in the near future, be endangered by excessive overtime and lack of rest of the men and women workers —Mr MABANE replied: The advice of the board has been sought by departments concerned with the production of war materials, and the board's investigators are making observations in factories with a view to advising how knowledge gained in previous researches can best be applied in practice under present conditions The questions considered include hours of work, rest pauses, factory illumination under blackout conditions, and factory heating and ventilation.

Margarine

Mr. GLENVIL HALL asked the Chancellor of the Duchy of Lancaster if he was aware that most brands of margarine sold in Great Britain were inferior to butter in vitamin qualities; and if he would prohibit the sale of any margarine which was so inferior —Mr LENNOX-BOYD, parliamentary secretary to the Ministry of Food, replied: A large proportion of the margarine entering domestic consumption is already vitaminised Consumers thus have the opportunity of exercising their own choice in this matter, and I see no necessity to prohibit the sale of margarine the vitamin content of which is inferior to that of butter.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 25, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1383; whooping-cough, 1111, diphtheria, 1074; enteric fever, 19; measles, 2011; pneumonia (primary or influenzal), 185; puerperal pyrexia, 162; cerebrospinal fever, 27; poliomyelitis, 12; polio-encephalitis, 3; encephalitis lethargica, 1; dysentery, 70; ophthalmia neonatorum, 53. No case of cholera, plague or typhus fever was notified during the week.

Deaths.—In 126 great towns, including London, there were no deaths from smallpox, enteric fever or measles, 3 (0) from scarlet fever, 2 (0) from whooping-cough, 27 (0) from diphtheria, 21 (3) from diarrhœa and enteritis under 2 years, and 26 (1) from influenza. The figures in parentheses are those for London itself.

Fatal cases of diphtheria were scattered over 20 great towns, Stockport and West Bromwich each reporting 3. Birmingham had 6 deaths from diarrhœa, Liverpool 5

The Lancet 100 Years Ago

Dec 14, 1839, p 448

From a note on "Knox's Revolving Bedstead.'

An ingenious and useful article of furniture has been presented to public notice, under the above name, by Mr W P. Knox, upholsterer, of Jermyn-street, St James's . . . All our hospitals, at times, present cases in which the progressive characters of spinal diseases and diseases of the hip-joint, for instance, are not perfectly ascertained simply from want of the means of a visual and manual inspection of the affected divisions . . . The bedstead of Mr Knox allows every portion of the surface of the body to be examined by the eye and hand, and, moreover, permits the patient to be placed in any position that is desired, in order to facilitate treatment or procure ease, unhandled by the nurse, and as readily facilitates the changes of the bed and body-linen The value of this contrivance has been repeatedly tested at St Thomas's Hospital, in some cases prolonging life, in others relieving acute pains, and leading to a permanent cure. At the Westminster Hospital, in the case of a female patient who had gone two years unexamined, the long-desired inspection on this bed was at once advantageously procured. In private houses its use is yet oftener needed, removing, on such occasions, a great weight of doubt and undue responsibility from the mind and acts of the surgeon.

Service Awards

The Royal Naval Volunteer Reserve Officers' decoration has been awarded to Surgeon Commander Robert Hall and Surgeon Commander Hoël Parry-Price

British Social Hygiene Council

Sir Walter Langdon-Brown has been appointed president of this council in succession to the Rt. Hon L S Amery, M P.

Appointments

Cumming, A. R R , M B Aberd , senior resident medical officer at London Road Hospital, Stoke on-Trent

Douglas, W M M B Glasg , assistant medical officer at the Oakwood Hall Sanatorium, Rotherham

Griffiths, D L., M B Manch , F R.C S , chief assistant to the orthopædic unit of the Royal Infirmary, Manchester

Heddy, W. H , M R C S , D.P H , coroner for East London

Hill, J L , M B. Belf , D P H , assistant school medical officer and assistant medical officer of health for Oldham.

Hynd, R S , M B Manch , D P H , deputy medical officer of health for Lincoln.

Kirvil, Nora L , M D Lond , resident medical officer at the Lydia Beynon Maternity Hospital, Newport, Mon , and assistant medical officer for maternity and child welfare for the county.

Lewis, J T R , M D. Lond , D.P H , deputy medical officer of health and deputy school medical officer for Croydon

Payne, D D , M D. Lond , D P H , medical officer of health and school medical officer for Harrogate.

Panton, Margaret S , M B. Edin , assistant welfare medical officer for the county of Durham

King Edward VII Welsh National Memorial Association.—The following appointments as area assistant tuberculosis physicians are announced —

Douglas, Barbara, M B. Glasg. ;
Greig, R W B , M B Aberd ,
Hanly, James, M B N U I , D P H , and
Jenkins, T H , M B Lond

Examining Surgeons under the Factories Act, 1937 Dr Dominic Ciantar (Abercrave district, Breconshire), and Dr. J. A. R Cant (Coleshill district, Warwickshire)

Colonial Medical Service—The following appointments and promotions are announced —

Cannon, D A , M.B Glasg , D T M. & H., medical officer, Nigeria ,
Macpherson, D C M., M B., D T M , assistant director of medical services, Fiji ;
MacQueen, John M D Edin , D P.H , deputy director of medical services, Palestine,
Marrable, I H , M.R C S , medical officer, West Africa ;
Stock, F. E , M B Lond , F.R.C S , medical officer, West Africa ,
Townsend, H S , M B., D T M. & H , senior health officer, Gold Coast.

Medical Diary

Week beginning Dec. 18

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W.1.

Monday to Saturday—St Mary's Hospital, Paddington, W 2, F R C S (final) Course—Tues , Wed , and Thurs., 5 P M , Royal Cancer Hospital, Fulham Road, S W 3, daily 9 30 A M —comprehensive F R.C S (final) course Brompton Hospital, S W 3, Mon and Wed , 1 30 P M —M R C P course in chest diseases. Medical Society of London, 11, Chandos Street, W.1, Tues , 4 30 P M , Mr G C Knight Sympathetic Nervous System · Wed , 4 30 P M , Mr. Kenneth Heritage: Testicle and Prostate

MANCHESTER ROYAL INFIRMARY

Tuesday—3 30 P.M , Dr. F. R Ferguson Air raid Neuroses and their Treatment

Friday—3 30 P M , Dr J Wharton and Dr P B Mumford Poisoning by Mustard Gas and other Poison Gases with special reference to the Treatment of Lesions of Eyes and Skin

Vacancies

Bangor, Caernarvonshire and Anglesey Infirmary—Sen and jun H S 's, £170 and £120 respectively

Bath, Royal United Hosp—Res H S 's and H P 's, each £150

Birmingham Maternity Hosp—H S , at rate of £75

Birmingham City Maternity and Child Welfare Dept—Temp M O £10 a week

Bristol City and County—Asst M O H , £500

Bury County Borough—Asst M O H , at rate of £550

Chelsea Hosp for Women Dovehouse Street, S W 3—Surgeon Also two H S 's, each £130

Chester, City Hosp—Sen and jun res M O 's, at rate of £350 and £150 respectively

Colchester, Royal Eastern Counties' Institution, &c—Asst M O , £400

Derby, Derbyshire Royal Infirmary—Res anæsthetist, £150

Durham County Council—Deputy county M O H , £960

Elizabeth Garrett Anderson Hosp , Euston Road, N W 1—Two H P 's, res anæsthetist, sen H S , and three H S 's, each £100

Erith Borough—Ophthalmic surgeon for School Medical Service, £2 12s 6d per session

Exeter, Royal Devon and Exeter Hosp—H S , at rate of £150

Folkestone, Royal Victoria Hosp—Jun res H S , £130

Gloucester, Gloucestershire Royal Infirmary, &c—H S , at rate of £150

Greenwich Metropolitan Borough—Tuberculosis officer for council's dispensary and deputy M O H , £750

Holt, Norfolk, Kelling Sanatorium—Jun res M O , £250

Hull Royal Infirmary—Cas O , at rate of £150.

Ilford, King George Hosp—Two H S 's, each at rate of £100

Kent Education Committee—Asst school M O , £12 a week

Kidderminster and District General Hosp—Sen. H S , at rate of £150

Lancaster Royal Infirmary—Jun H S , at rate of £130

Lincoln City—Asst M O H , £500

Lincoln County Hosp—Sen H S , at rate of £250

Liverpool, County Mental Hosp , Rainhill—Deputy med supt , £800

Manchester, Ancoats Hosp—Cas O , £150 Also clin asst for ear, nose, and throat dept

Manchester, County Mental Hosp , Prestwich—Med supt , £950

Manchester, Duchess of York Hosp for Babies—Asst anæsthetist

Manchester Royal Infirmary—Chief medical asst to clin investigations and res dept , £350

Manchester, Victoria Memorial Jewish Hosp , Cheetham—Res surg O , £200

Newcastle upon Tyne, Royal Victoria Infirmary—Res appts , at rate of £200 to £50 Also res M O , £200

North Middlesex County Hosp , Silver Street, Edmonton, N 18—Res obstet. H S , at rate of £100 Also asst M O , at rate of £350

Richmond, Surrey, Royal Hosp—Sen H S , £150–£200

Sheffield, Jessop Hosp for Women—H S , at rate of £100

St John's Hosp , Lewisham, S E 13—Res surg O , £200

St Mary's Hosp , W 2—Sen and jun asst radiologists, £125 and £75 respectively

Truro, Royal Cornwall Infirmary—Hon ear, nose, and throat surgeon

Wakefield City—Jun asst M O , £500

Weir Hosp , Weir Road, Balham, S W 12—Jun res M O , £150

Worthing Hosp—Temporary general surgeon Also temporary anæsthetist

Wrexham and East Denbighshire War Memorial Hosp—Res H S , at rate of £150.

York County Hosp—H S , £150

Births, Marriages and Deaths

BIRTHS

Bartlett —On Dec 4, at Saffron Walden, the wife of Dr J. Bartlett—a daughter

Chappel —On Dec 7, at Norwich, to Audrey (*née* Long), wife of Dr J G Chappel—a daughter

Dorling.—On Dec. 5, at Bromley, the wife of Mr G. C. Dorling, F R.C S of Blackheath—a son

Ellman —On Dec 5, at Worthing, the wife of Dr. Philip Ellman of Weymouth Street, W 1—a son.

Gardiner-Hill.—On Dec. 8, the wife of Dr Clive Gardiner-Hill, of Banbury—a son

Gaston —On Dec 4, at Sevenoaks, the wife of Dr A P Gaston—a daughter.

Trevelyan Jones —On Dec 7, the wife of Dr. R Trevelyan Jones, of Wolverhampton—a son

MARRIAGES

Mackenzie—Petier —On Dec. 8, at Glasgow, Colonel Donald Francis Mackenzie, R A M C , to Nina Rosina Petier, of Swannington, Norfolk

Page—Vaux —On Nov 29, at Solihull Parish Church, Ericheen Sutton Page F R C S , to Ethel Muriel Vaux, of London

Prichard—Webber —On Dec 9, in Llandaff Cathedral, John Stobo Prichard, M B , R.A M C , of Barry, Glamorganshire, to Joan Suzanne Webber, of Penylan, Cardiff.

DEATHS

Alpin —On Dec 6, Lieut -Colonel William George Patrick Alpin, M D Brussels M R C S , I M S retd , of Richmond, Surrey, aged 80

Baker —On Dec 9, suddenly, at Ferndown, Dorset, Lieut - Colonel William Lincoln Baker M R.C S R A M C retd

Brander —On Dec 7, at Keighley, Hugh Steward Brander, M D Aberd , aged 59

Fells —On Dec 9, Arthur Fells, F.R C.S E , of Clifton, Bristol, aged 70

Pugh —On Dec 10 John Hopkins Pugh, B A Camb , M R C S , L S A , of Buckhurst Hill, Essex, aged 90

Randall.—On Dec 7 1939, at Haslemere, Martin Randall, M D Lond F R C S aged 71

Reynolds —On Oct. 17, missing from S S *Yorkshire*, Lieut - Colonel William Leonard Eliot Reynolds, M R C S , R.A.M C , of Ewshot, near Farnham

Scott —On Dec 11, at Guildford, Dr Charles Casely Scott, M B Edin., aged 81

Sutton —On Dec. 9, at Reading, the Rev Francis William Sutton, M.D Durh , formerly medical missionary in Upper Burma and Pondoland

Todd —On Active Service Thomas Francis Todd, M S Lond., F R C S , of Manchester

Webb —On Dec 7, Hugh Webb, M R C.S., R A M.C retd , of Earl Soham, Suffolk, aged 80

NOTES, COMMENTS AND ABSTRACTS

BLOOD GROUPING IN GENERAL PRACTICE

DR J **HASTIE JONES** writes The following practical additions to your special article on Blood-groups Explained[1] may be of value to those who had no experience of grouping in their student days The two current systems of nomenclature are the Moss and the International The Moss arrangement uses numbers and the International letters The universal recipient is group 1 or AB, the universal donor is group 4 or O The other two are group 2 or A and group 3 or B In practice the donor's serum is so greatly diluted that it can be neglected The important point is the effect of the recipient's serum on the donor's red cells If these are incompatible, trouble ensues

Grouping—To find the group of an unknown blood one uses sera of group A and group B, these sera should be of high titre (about 1 100, c f the normal, which ranges from 1 80 up) A drop of the unknown blood (X) is added to twenty times its volume of saline, and a drop of this mixture (virtually a suspension of the unknown red cells) is added to each of two drops of the known sera A and B on a clean glass slide Each is thoroughly mixed, with a separate mixer so that no cross-contamination occurs If the corpuscles are incompatible, in a few moments they become clumped together as particulate masses, visible to the naked eye Four possible reactions may occur —

(1) If neither serum causes clumping, X = O

(2) If both sera cause clumping X = AB

(3) If serum A causes clumping while serum B does not, X = B

(4) If serum B causes clumping while serum A does not, X = A

The presence or absence of clumping may be confirmed with a hand lens or low-power microscope A possible source of error is pseudo agglutination or rouleaux formation (detectable under the microscope, and usually prevented by the use of properly prepared grouping sera) Rouleaux can usually be broken up by tapping the slide smartly Pseudo-agglutination is unlikely to occur with stock group-sera, as the power to produce it is transient in serum It may give trouble in direct matching, as sera of all patients with high sedimentation-rates are specially prone to produce it Cold agglutination can be prevented by gently warming slide

Direct matching—Even when the group of the donor is known to be compatible with that of the recipient direct matching is still essential A Widal tube full of the patient's blood is collected and allowed to clot Enough can be got from the ear, thus avoiding venepuncture, the less damage to the recipient's veins the better If no centifuge is at hand, in 15 minutes enough serum will be available A drop of this is pipetted off on to a glass slide A drop of the donor's blood is added to about twenty times its volume of saline, and a drop of this suspension is added to the drop of recipient's serum If no clumping occurs, all is well

In our Isle of Wight Blood Transfusion Service, we have the following number of donors —

Group	AB	A	B	O
Peace time donors	2	18	2	18
War emergency donors	7	113	20	109

The sincerity and cheerfulness of these good people is most impressive In the rest of the country, only group O donors have, as a rule been enrolled, for simplicity in organisation This overdose of group O seems to be an unfortunate necessity, for time might prove too short for grouping casualties

---

1 *Lancet*, Oct 21 1939 p 901

AGIN THE GOVERNMENT

IN his frank, lively and altogether unconventional autobiography ("All Too Human" London: Peter Davies 1930 Pp 381 8s 0d) Colonel Owen Berkeley-Hill discloses himself as an enfant terrible constantly at grips with constituted authority Most of his life, in the words used by Sydney Smith to describe his own, he has been "like a razor, either in hot water or a scrape" Starting with his childhood and adolescence, he goes on to depict his early sex life, explains how he came to take up psychiatry, and recounts his experiences in the Indian Medical Service and, during the last war, in East Africa The story of his fight with apathetic bureaucracy to improve the appalling condition of the old "lunatic asylum" at Ranchi is stimulating In later chapters he tells of his entirely successful marriage to an Indian lady and of his love of children and horses The enfant terrible asserts itself again in his account of how he deserted a sight-seeing party on a visit to Washington, choosing to watch a game of polo rather than visit the famous cemetery at Arlington Coming at this time of intense racial propaganda, his remarks on miscegenation are interesting and might provide food for thought if they could be introduced into Germany by the Royal Air Force

TUMOURS OF THE FRONTAL LOBE

IN a long article, profusely illustrated with diagrams, photomicrographs, and encephalograms, Prof Alejandro Schroeder (*Ann Fac Med Montevideo*, 1939, 24, 121) reviews the anatomy and histology of the frontal lobe and the symptomatology of lesions in that area and describes 18 new cases of frontal lobe tumours He concludes that the signs and symptoms of these tumours depend more on the concomitant cerebral œdema than on the anatomical relations of the tumour or its degree of malignancy In his view mental changes are commonly associated with a tumour in the frontal lobe because this lobe occupies a large space and is exceptionally rich in white matter, which is the cerebral tissue most subject to œdema The œdematous frontal lobe then presses on the main blood-vessels and disturbs the circulation of the whole brain, and it is this disturbance that produces the clinical picture No clinician, says Professor Schroeder should therefore attempt to diagnose a tumour of the frontal region on signs and symptoms alone, the diagnosis must rest on careful ventriculography

A MURDER STORY

IN Belton Cobb's latest thriller ("Death Defies the Doctor" Longmans, Green and Co 1939 Pp 280 7s 6d) Cicely Cork, a crassly stupid young woman with a pronounced father-fixation, became engaged to Donald Galt, a veterinary surgeon of surpassing physical attractions but lamentably lacking in moral health Cicely's invalid father, suffering from rheumatoid arthritis and inoperable carcinoma of the stomach, is scheduled by a "specialist" to live for a year or more but dies prematurely from an overdose of morphia This diagnosis is made, apparently in a lucid interval by the absent-minded Dr Critchley—surely one of the most imbecile practitioners of fiction—who stands to gain a large sum by the premature demise of his patient Galt, knowing nothing of this is anxious that the old man should die as soon as possible so that he can marry Cicely for financial reasons Doctor, vet, daughter and devout maidservant are all more or less suspect, and Superintendent Rolfe, who should never have attained that lofty rank, is completely defeated by the problem It is to be hoped that the reader will have less difficulty than had Detective-Inspector Burmann in spotting the guilty party in this ingenuously told tale

Service Awards

The Royal Naval Volunteer Reserve Officers' decoration has been awarded to Surgeon Commander Robert Hall and Surgeon Commander Hoël Parry-Price

British Social Hygiene Council

Sir Walter Langdon-Brown has been appointed president of this council in succession to the Rt Hon. L S. Amery, M P.

Appointments

CUMMING, A R R , M B Aberd , senior resident medical officer at London Road Hospital, Stoke on-Trent

DOUGLAS, W M M B. Glasg , assistant medical officer at the Oakwood Hall Sanatorium, Rotherham

GRIFFITHS, D L , M B Manch , F.R C S , chief assistant to the orthopædic unit of the Royal Infirmary, Manchester

HEDDY, W. H , M R C S , D P H , coroner for East London

HILL, J L , M B Belf , D P H , assistant school medical officer and assistant medical officer of health for Oldham

HYND, R S , M B Manch , D P H , deputy medical officer of health for Lincoln

KEEVIL, NORA L , M D Lond , resident medical officer at the Lydia Beynon Maternity Hospital, Newport, Mon , and assistant medical officer for maternity and child welfare for the county

LEWIS, J. T R , M D Lond , D P H , deputy medical officer of health and deputy school medical officer for Croydon

PAYNE, D. D , M D Lond , D P.H , medical officer of health and school medical officer for Harrogate.

PAXTON, MARGARET S , M B Edin., assistant welfare medical officer for the county of Durham

King Edward VII Welsh National Memorial Association —The following appointments as area assistant tuberculosis physicians are announced :—

- DOUGLAS, BARBARA, M B Glasg ,
- GREIG, R W. B , M.B Aberd ,
- HANLY, JAMES, M.B N U I , D P H ; and
- JENKINS, T. H , M B Lond

Examining Surgeons under the Factories Act, 1937 Dr DOMINIC CIANTAR (Abercrave district, Breconshire), and Dr. J. A R CANT (Coleshill district, Warwickshire)

Colonial Medical Service.—The following appointments and promotions are announced :—

- CANNON, D A , M B Glasg , D T M & H , medical officer, Nigeria ,
- MACPHERSON, D C M , M B , D.T M , assistant director of medical services, Fiji ;
- MACQUEEN, JOHN M.D Edin., D.P H , deputy director of medical services, Palestine,
- MARRABLE, I H , M.R C.S , medical officer, West Africa ;
- STOCK, F. E., M B Lond , F R C S., medical officer, West Africa ;
- TOWNSEND, H S , M.B , D T.M & H , senior health officer, Gold Coast.

Medical Diary

Week beginning Dec. 18

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W.1.

MONDAY to SATURDAY—St Mary's Hospital, Paddington, W 2, F R C S (final) Course—Tues , Wed , and Thurs., 8 P M , Royal Cancer Hospital, Fulham Road, S W.3, daily 9 30 A M —comprehensive F R C S (final) course Brompton Hospital, S W 3, Mon and Wed , 4 30 P M — M R C P course in chest diseases Medical Society of London, 11, Chandos Street, W.1, Tues , 4 30 P M , Mr G C. Knight . Sympathetic Nervous System ; Wed , 4 30 P.M , Mr. Kenneth Heritage: Testicle and Prostate

MANCHESTER ROYAL INFIRMARY.

TUESDAY—3 30 P M , Dr F R Ferguson Air-raid Neuroses and their Treatment.

FRIDAY—3 30 P M , Dr J Wharton and Dr P B Mumford . Poisoning by Mustard Gas and other Poison Gases with special reference to the Treatment of Lesions of Eyes and Skin

Vacancies

Bangor, Caernarvonshire and Anglesey Infirmary —Sen and jun H S 's, £170 and £120 respectively

Bath, Royal United Hosp —Res H S 's and H P 's, each £150

Birmingham Maternity Hosp —H S , at rate of £75

Birmingham City Maternity and Child Welfare Dept —Temp M O £10 a week

Bristol City and County —Asst M O H , £500

Bury County Borough —Asst M O H , at rate of £550

Chelsea Hosp for Women Dovehouse Street, S W 3 —Surgeon [illegible] two H S 's, each £130

[illegible] *Hosp* —Sen and jun res M O 's, at rate of £350 [illegible] £150 respectively

[illegible], *Royal Eastern Counties' Institution, &c* —Asst M O , [illegible]

[illegible] *Derbyshire Royal Infirmary* —Res anæsthetist, £150

[illegible] *County Council* —Deputy county M O H , £960

[illegible] *Garrett Anderson Hosp , Euston Road, N W 1* —Two [illegible]'s, res anæsthetist sen H S , and three H S 's, each [illegible]

Erith Borough —Ophthalmic surgeon for School Medical Service, £2 12s 6d per session

Exeter, Royal Devon and Exeter Hosp —H S , at rate of £150

Folkestone, Royal Victoria Hosp —Jun res H S , £130

Gloucester, Gloucestershire Royal Infirmary, &c.—H.S , at rate of £150

Greenwich Metropolitan Borough —Tuberculosis officer for council's dispensary and deputy M O H , £750

Holt, Norfolk, Kelling Sanatorium —Jun res M O , £250

Hull Royal Infirmary —Cas O , at rate of £150

Ilford, King George Hosp —Two H S 's, each at rate of £100

Kent Education Committee —Asst school M O , £12 a week

Kidderminster and District General Hosp —Sen H S , at rate of £150

Lancaster Royal Infirmary —Jun H S , at rate of £130

Lincoln City —Asst M O H , £500

Lincoln County Hosp —Sen H S , at rate of £250

Liverpool, County Mental Hosp , Rainhill —Deputy med supt , £800

Manchester, Ancoats Hosp —Cas O , £150 Also clin asst. for ear, nose, and throat dept

Manchester, County Mental Hosp , Prestwich —Med. supt., £950

Manchester, Duchess of York Hosp for Babies —Asst anæsthetist

Manchester Royal Infirmary —Chief medical asst to clin investigations and res dept , £350

Manchester, Victoria Memorial Jewish Hosp , Cheetham —Res surg O , £200

Newcastle upon Tyne, Royal Victoria Infirmary —Res appts , at rate of £200 to £50 Also res M O , £200

North Middlesex County Hosp , Silver Street, Edmonton, N 18 — Res. obstet. H S , at rate of £100 Also asst M O , at rate of £350

Richmond, Surrey, Royal Hosp —Sen H S , £150-£200

Sheffield, Jessop Hosp for Women —H S , at rate of £100.

St John's Hosp , Lewisham, S E 13 —Res surg O , £200.

St. Mary's Hosp , W.2 —Sen and jun asst radiologists, £125 and £75 respectively

Truro, Royal Cornwall Infirmary —Hon ear, nose, and throat surgeon

Wakefield City —Jun asst M O , £500

Weir Hosp , Weir Road, Balham, S W 12 —Jun res M O , £150

Worthing Hosp —Temporary general surgeon. Also temporary anæsthetist

Wrexham and East Denbighshire War Memorial Hosp —Res H S , at rate of £150

York County Hosp —H.S , £150.

Births, Marriages and Deaths

BIRTHS

BARTLETT —On Dec 4, at Saffron Walden, the wife of Dr. J. Bartlett—a daughter.

CHAPPEL —On Dec 7, at Norwich, to Audrey (*née* Long), wife of Dr J G Chappel—a daughter

DORLING —On Dec 5, at Bromley, the wife of Mr. G C Dorling, F.R C S of Blackheath—a son

ELLMAN —On Dec 5, at Worthing, the wife of Dr. Philip Ellman, of Weymouth Street, W.1—a son

GARDINER-HILL.—On Dec. 8, the wife of Dr Clive Gardiner-Hill, of Banbury—a son

GASTON —On Dec 4, at Sevenoaks, the wife of Dr A P Gaston—a daughter.

TREVELYAN JONES.—On Dec. 7, the wife of Dr. R Trevelyan Jones, of Wolverhampton—a son

MARRIAGES

MACKENZIE—PETLER —On Dec. 8, at Glasgow, Colonel Donald Francis Mackenzie, R A.M.C., to Nina Rosina Petler, of Swannington, Norfolk.

PAGE—VAUX —On Nov. 29, at Solihull Parish Church, Erichsen Sutton Page, F R C S , to Ethel Muriel Vaux, of London

PRICHARD—WEBBER —On Dec. 9, in Llandaff Cathedral, John Stobo Prichard, M B , R A M C , of Barry, Glamorganshire, to Joan Suzanne Webber, of Penylan, Cardiff

DEATHS

ALPIN —On Dec. 6, Lieut -Colonel William George Patrick Alpin, M.D Brussels, M R.C S , I M.S retd , of Richmond, Surrey, aged 80

BAKER.—On Dec 9, suddenly, at Ferndown Dorset, Lieut - Colonel William Lincoln Baker M R.C S , R A M C retd

BRANDER —On Dec 7, at Keighley, Hugh Steward Brander, M D Aberd , aged 79

FELLS —On Dec 9, Arthur Fells, F.R C S E , of Clifton, Bristol, aged 70

PUGH —On Dec 10, John Hopkins Pugh, B.A Camb , M.R C.S L S A , of Buckhurst Hill, Essex, aged 90

RANDALL.—On Dec 7 1939, at Haslemere, Martin Randall M D Lond., F.R C S , aged 71

REYNOLDS —On Oct 17, missing from S S *Yorkshire*, Lieut - Colonel William Leonard Eliot Reynolds, M.R C S , R A M.C , of Ewshot, near Farnham

SCOTT —On Dec 11 at Guildford, Dr Charles Casely Scott, M B Edin , aged 81

SUTTON —On Dec 9, at Reading, the Rev. Francis William Sutton, M D Durh , formerly medical missionary in Upper Burma and Pondoland

TODD —On Active Service, Thomas Francis Todd, M.S. Lond , F.R.C S , of Manchester

WEBB.—On Dec. 7, Hugh Webb, M.R.C S ., R A M C. retd., of Earl Soham, Suffolk, aged 80

NOTES, COMMENTS AND ABSTRACTS

BLOOD GROUPING IN GENERAL PRACTICE

Dr J HASTIE JONES writes: The following practical additions to your special article on Blood-groups Explained[1] may be of value to those who had no experience of grouping in their student days. The two current systems of nomenclature are the Moss and the International. The Moss arrangement uses numbers and the International letters. The universal recipient is group 1 or AB, the universal donor is group 4 or O. The other two are group 2 or A and group 3 or B. In practice the donor's serum is so greatly diluted that it can be neglected. The important point is the effect of the recipient's serum on the donor's red cells. If these are incompatible, trouble ensues.

Grouping.—To find the group of an unknown blood one uses sera of group A and group B; these sera should be of high titre (about 1 : 100, of the normal, which ranges from 1 : 30 up). A drop of the unknown blood (X) is added to twenty times its volume of saline, and a drop of this mixture (virtually a suspension of the unknown red cells) is added to each of two drops of the known sera A and B on a clean glass slide. Each is thoroughly mixed, with a separate mixer so that no cross contamination occurs. If the corpuscles are incompatible, in a few moments they become clumped together as particulate masses, visible to the naked eye. Four possible reactions may occur:—

(1) If neither serum causes clumping X = O.

(2) If both sera cause clumping X = AB.

(3) If serum A causes clumping, while serum B does not, X = B.

(4) If serum B causes clumping while serum A does not, X = A.

The presence or absence of clumping may be confirmed with a hand lens or low-power microscope. A possible source of error is pseudo agglutination or rouleaux formation (detectable under the microscope, and usually prevented by the use of properly prepared grouping sera). Rouleaux can usually be broken up by tapping the slide smartly. Pseudo-agglutination is unlikely to occur with stock group-sera, as the power to produce it is transient in serum. It may give trouble in direct matching, as sera of ill patients with high sedimentation rates are specially prone to produce it. Cold agglutination can be prevented by gently warming slide.

Direct matching.—Even when the group of the donor is known to be compatible with that of the recipient direct matching is still essential. A Widal tube full of the patient's blood is collected and allowed to clot. Enough can be got from the ear, thus avoiding venepuncture; the less damage to the recipient's veins the better. If no centrifuge is at hand, in 15 minutes enough serum will be available. A drop of this is pipetted off on to a glass slide. A drop of the donor's blood is added to about twenty times its volume of saline, and a drop of this suspension is added to the drop of recipient's serum. If no clumping occurs, all is well.

In our Isle of Wight Blood Transfusion Service, we have the following number of donors:—

Group	AB	A	B	O
Peace time donors	2	18	2	18
War emergency donors	7	113	20	109

The sincerity and cheerfulness of these good people is most impressive. In the rest of the country, only group O donors have, as a rule, been enrolled, for simplicity in organisation. This overflow of group O seems to be an unfortunate necessity, for time might prove too short for grouping casualties.

AGIN THE GOVERNMENT

IN his frank, lively and altogether unconventional autobiography ("All Too Human." London: Peter Davies. 1939. Pp 381. 8s 6d.) Colonel Owen Berkeley-Hill discloses himself as an enfant terrible constantly at grips with constituted authority. Most of his life, in the words used by Sydney Smith to describe his own, he has been "like a razor, either in hot water or a scrape." Starting with his childhood and adolescence, he goes on to depict his early sex life, explains how he came to take up psychiatry, and recounts his experiences in the Indian Medical Service and, during the last war, in East Africa. The story of his fight with apathetic bureaucracy to improve the appalling condition of the old "lunatic asylum" at Ranchi is stimulating. In later chapters he tells of his entirely successful marriage to an Indian lady and of his love of children and horses. The *enfant terrible asserts itself again in his account* of how he deserted a sight-seeing party on a visit to Washington, choosing to watch a game of polo rather than visit the famous cemetery at Arlington. Coming at this time of intense racial propaganda, his remarks on miscegenation are interesting and might provide food for thought if they could be introduced into Germany by the Royal Air Force.

TUMOURS OF THE FRONTAL LOBE

IN a long article, profusely illustrated with diagrams, photomicrographs, and encephalograms, Prof Alejandro Schroeder (*Ann Fac Med Montevideo*, 1939, 24, 121) reviews the anatomy and histology of the frontal lobe and the symptomatology of lesions in that area and describes 18 new cases of frontal lobe tumours. He concludes that the signs and symptoms of these tumours depend more on the concomitant cerebral œdema than on the anatomical relations of the tumour or its degree of malignancy. In his view mental changes are commonly associated with a tumour in the frontal lobe because this lobe occupies a large space and is exceptionally rich in white matter which is the cerebral tissue most subject to œdema. The œdematous frontal lobe then presses on the main blood-vessels and disturbs the circulation of the whole brain, and it is this disturbance that produces the clinical picture. No clinician, says Professor Schroeder, should therefore attempt to diagnose a tumour of the frontal region on signs and symptoms alone; the diagnosis must rest on careful ventriculography.

A MURDER STORY

IN Belton Cobb's latest thriller ("Death Defies the Doctor." Longmans, Green and Co. 1939. Pp 286. 7s 6d.) Cicely Cork, a crassly stupid young woman with a pronounced father fixation, became engaged to Donald Galt, a veterinary surgeon of surpassing physical attractions but lamentably lacking in moral health. Cicely's invalid father, suffering from rheumatoid arthritis and inoperable carcinoma of the stomach, is scheduled by a "specialist" to live for a year or more but dies prematurely from an overdose of morphia. This diagnosis is made, apparently in a lucid interval, by the absent minded Dr Critchley—surely one of the most imbecile practitioners of fiction—who stands to gain a large sum by the premature demise of his patient. Galt, knowing nothing of this, is anxious that the old man should die as soon as possible so that he can marry Cicely for financial reasons. Doctor, vet, daughter and devout maidservant are all more or less suspect and Superintendent Rolfe, who should never have attained lofty rank, is completely defeated by the
It is to be hoped that the reader will have
culty than had Detective-Inspector P
spotting the guilty party in this ingenuously

---

[1] *Lancet* Oct 21 1939, p 901

Service Awards

The Royal Naval Volunteer Reserve Officers' decoration has been awarded to Surgeon Commander Robert Hall and Surgeon Commander Hoël Parry-Price.

British Social Hygiene Council

Sir Walter Langdon-Brown has been appointed president of this council in succession to the Rt Hon L S Amory, M P.

Appointments

CUMMING, A R R, M B. Aberd, senior resident medical officer at London Road Hospital, Stoke on-Trent

DOUGLAS, W. M M B Glasg, assistant medical officer at the Oakwood Hall Sanatorium, Rotherham

GRIFFITHS, D. L, M B. Manch, F R C.S, chief assistant to the orthopædic unit of the Royal Infirmary, Manchester

HEDDY, W H, M R C S, D P H, coroner for East London

HILL, J L, M B. Belf, D P H, assistant school medical officer and assistant medical officer of health for Oldham

HYND, R S, M B Manch, D P H, deputy medical officer of health for Lincoln

KEEVIL, NORA L, M D Lond, resident medical officer at the Lydia Benyon Maternity Hospital, Newport, Mon, and assistant medical officer for maternity and child welfare for the county.

LEWIS, J. T R, M D Lond, D P.H., deputy medical officer of health and deputy school medical officer for Croydon

PAYNE, *D D, M D Lond; D P H, medical* officer of health and school medical officer for Harrogate

PAXTON, MARGARET S, M B Edin, assistant welfare medical officer for the county of Durham

King Edward VII Welsh National Memorial Association—The following appointments as area assistant tuberculosis physicians are announced —

- DOUGLAS, BARBARA, M B Glasg,
- GREIG, R W B, M.B Aberd,
- HANLY, JAMES, M B N U I, D P H, and
- JENKINS, T H., M B Lond

Examining Surgeons under the Factories Act, 1937. Dr. DOMINIC CIANTAR (Abercrave district, Breconshire), and Dr. J A R CANT (Coleshill district, Warwickshire)

Colonial Medical Service.—The following appointments and promotions are announced —

- CANNON, D A, M B Glasg, D T M & H, medical officer, Nigeria;
- MACPHERSON, D C M, M B, D.T M, assistant director of medical services, Fiji,
- MACQUEEN, JOHN M D Edin, D P H, *deputy director of* medical services, Palestine,
- MARRABLE, I H, M R C S, medical officer, West Africa;
- STOCK, F. E, M B Lond, F R C S, medical officer, West Africa,
- TOWNSEND, H S, M.B., D.T.M & H, senior health officer, Gold Coast

Medical Diary

Week beginning Dec 18

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W 1

MONDAY to SATURDAY—St Mary's Hospital, Paddington, W 2, F R C S (final) Course—Tues, Wed, and Thurs, 8 P M, Royal Cancer Hospital, Fulham Road, S W 3, daily 9 30 A M—comprehensive F R C S (final) course Brompton Hospital, S.W 3, Mon and Wed, 4 30 P M—M R C P course in chest diseases Medical Society of London, 11, Chandos Street, W.1, Tues, 4 30 P M, Mr G C Knight Sympathetic Nervous System, Wed, 4 30 P M, Mr. Kenneth Heritage Testicle and Prostate

MANCHESTER ROYAL INFIRMARY

TUESDAY—3 30 P M, Dr F R Ferguson Air-raid Neuroses and their Treatment

FRIDAY—3.30 P M, Dr J Wharton and Dr P B Mumford Poisoning by Mustard Gas and other Poison Gases with special reference to the Treatment of Lesions of Eyes and Skin

Vacancies

Bangor, Caernarvonshire and Anglesey Infirmary—Sen and jun H S's, £170 and £120 respectively

Bath, Royal United Hosp—Res H S's and H P's, each £150

Birmingham Maternity Hosp—H S, at rate of £75

Birmingham City Maternity and Child Welfare Dept—Temp M O, £10 a week

Bristol City and County—Asst M O H, £500

Bury County Borough—Asst M O H, at rate of £550

Chelsea Hosp for Women, Dovehouse Street, S W 3—Surgeon Also two H S's, each £130

Chester, City Hosp—Sen and jun res M O's, at rate of £350 and £150 respectively

Colchester, Royal Eastern Counties' Institution, &c—Asst M O, £400

Derby, Derbyshire Royal Infirmary—Res anæsthetist, £150

Durham County Council—Deputy county M O H, £960

Elizabeth Garrett Anderson Hosp, Euston Road, N W 1—Two H P's, res anæsthetist, sen H S, and three H S's, each £100

Erith Borough—Ophthalmic surgeon for School Medical Service, £2 12s 6d per session

Exeter, Royal Devon and Exeter Hosp—H S, at rate of £150

Folkestone, Royal Victoria Hosp—Jun res H S, £130

Gloucester, Gloucestershire Royal Infirmary, &c—H S, at rate of £150

Greenwich Metropolitan Borough—Tuberculosis officer for council's dispensary and deputy M O H, £750

Holt, Norfolk, Kelling Sanatorium—Jun res M O, £250

Hull Royal Infirmary—Cas O, at rate of £150

Ilford, King George Hosp—Two H S's, each at rate of £100.

Kent Education Committee—Asst school M O, £12 a week

Kidderminster and District General Hosp—Sen H S, at rate of £150

Lancaster Royal Infirmary—Jun H S, at rate of £130

Lincoln City—Asst M.O H, £500

Lincoln County Hosp—Sen H S, at rate of £250

Liverpool, County Mental Hosp, Rainhill—Deputy med supt, £800

Manchester, Ancoats Hosp—Cas O, £150 Also clin asst for ear, nose, and throat dept

Manchester, County Mental Hosp, Prestwich—Med supt, £950

Manchester, Duchess of York Hosp for Babies—Asst anæsthetist

Manchester Royal Infirmary—Chief medical asst to clin investigations and res dept, £350

Manchester, Victoria Memorial Jewish Hosp, Cheetham—Res surg O, £200

Newcastle upon Tyne, Royal Victoria Infirmary—Res appts, at rate of £200 to £50 Also res M O, £200

North Middlesex County Hosp, Silver Street, Edmonton, N 18—Res obstet H S, at rate of £100 Also asst. M O, at rate of £350

Richmond, Surrey, Royal Hosp—Sen H S, £150–£200

Sheffield, Jessop Hosp for Women—H S, at rate of £100

St John's Hosp, Lewisham, S E 13—Res surg O, £200

St Mary's Hosp, W 2—Sen and jun asst radiologists, £125 and £75 respectively

Truro, Royal Cornwall Infirmary—Hon ear, nose, and throat surgeon

Wakefield City—Jun asst M O, £500

Weir Hosp, Weir Road, Balham, S W 12—Jun res M O, £150

Worthing Hosp—Temporary general surgeon Also temporary anæsthetist

Wrexham and East Denbighshire War Memorial Hosp—Res H S, at rate of £150.

York County Hosp—H S, £150

Births, Marriages and Deaths

BIRTHS

BARTLETT—On Dec 4, at Saffron Walden, the wife of Dr J Bartlett—a daughter

CHAPPEL.—On Dec 7, at Norwich, to Audrey (*née* Long), wife of Dr J G Chappel—a daughter

DORLING—On Dec 5, at Bromley, the wife of Mr. G C Dorling, F R C S of Blackheath—a son

ELLMAN—On Dec 5, at Worthing, the wife of Dr Philip Ellman, of Weymouth Street, W 1—a son.

GARDINER-HILL—On Dec 8, the wife of Dr Clive Gardiner-Hill, of Banbury—a son

GASTON—On Dec 4, at Sevenoaks, the wife of Dr A P Gaston—a daughter

TREVELYAN JONES—On Dec 7, the wife of *Dr R. Trevelyan* Jones, of Wolverhampton—a son

MARRIAGES

MACKENZIE—PETLER—On Dec. 8, at Glasgow, Colonel Donald Francis Mackenzie, R.A.M C, to Nina Rosina Petler, of Swannington, Norfolk

PAGE—VAUX—On Nov 29, at Solihull Parish Church, Erichsen Sutton Page, F R C S, to Ethel Muriel Vaux, of London

PRICHARD—WEBBER—On Dec 9, in Llandaff Cathedral, John Stobo Prichard, M B, R A.M C, of Barry, Glamorganshire, to Joan Suzanne Webber, of Penylan, Cardiff.

DEATHS

ALPIN—On Dec 6, Lieut-Colonel William George Patrick Alpin, M D Brussels, M R C S, I M S retd, of Richmond, Surrey, aged 80

BAKER—*On Dec 9, suddenly*, at Ferndown Dorset, Lieut-Colonel William Lincoln Baker, M R C S, R A.M C retd

BRANDER—On Dec 7, at Keighley, Hugh Steward Brander, M D Aberd, aged 59

FELLS—On Dec 9, Arthur Fells, F R C S.E, of Clifton, Bristol, aged 70

PUGH—On Dec. 10, John Hopkins Pugh, B.A. Camb., M R C S, L S A, of Buckhurst Hill, Essex, aged 90.

RANDALL.—On Dec 7, 1939, at Haslemere, Martin Randall, M D Lond, F R C S, aged 71

REYNOLDS—On Oct 17, missing from S S *Yorkshire*, Lieut-Colonel William Leonard Elliot Reynolds, M R C S, R A M C., of Ewshot, near Farnham

SCOTT—On Dec 11, at Guildford, Dr Charles Casely Scott, M B Edin, aged 81

SUTTON—On Dec 9, at Reading, the Rev. Francis William Sutton, M D Durh, formerly medical missionary in Upper Burma and Pondoland

TODD—On Active Service, Thomas Francis Todd, M S Lond., F R C.S, of Manchester

WEBB—On Dec 7, Hugh Webb, M.R C S, R A M C retd., of Earl Soham, Suffolk, aged 80

NOTES, COMMENTS AND ABSTRACTS

BLOOD GROUPING IN GENERAL PRACTICE

Dr J. HASTIE JONES writes: The following practical additions to your special article on Blood-groups Explained[1] may be of value to those who had no experience of grouping in their student days. The two current systems of nomenclature are the Moss and the International. The Moss arrangement uses numbers and the International letters. The universal recipient is group 1 or AB, the universal donor is group 4 or O. The other two are group 2 or A and group 3 or B. In practice the donor's serum is so greatly diluted that it can be neglected. The important point is the effect of the recipient's serum on the donor's red cells. If these are incompatible, trouble ensues.

Grouping.—To find the group of an unknown blood one uses sera of group A and group B; these sera should be of high titre (about 1:100, c.f. the normal which ranges from 1:30 up). A drop of the unknown blood (X) is added to twenty times its volume of saline, and a drop of this mixture (virtually a suspension of the unknown red cells) is added to each of two drops of the known sera A and B on a clean glass slide. Each is thoroughly mixed, with a separate mixer so that no cross contamination occurs. If the corpuscles are incompatible in a few moments they become clumped together as particulate masses, visible to the naked eye. Four possible reactions may occur:—

(1) If neither serum causes clumping, X = O.

(2) If both sera cause clumping, X = AB.

(3) If serum A causes clumping, while serum B does not, X = B.

(4) If serum B causes clumping while serum A does not, X = A.

The presence or absence of clumping may be confirmed with a hand lens or low-power microscope. A possible source of error is pseudo-agglutination or rouleaux formation (detectable under the microscope, and usually prevented by the use of properly prepared grouping sera). Rouleaux can usually be broken up by tapping the slide smartly. Pseudo-agglutination is unlikely to occur with stock group-sera, as the power to produce it is transient in serum. It may give trouble in direct matching as sera of ill patients with high sedimentation rates are specially prone to produce it. Cold agglutination can be prevented by gently warming slide.

Direct matching.—Even when the group of the donor is known to be compatible with that of the recipient direct matching is still essential. A Widal tube full of the patient's blood is collected and allowed to clot. Enough can be got from the ear, thus avoiding venepuncture; the less damage to the recipient's veins the better. If no centrifuge is at hand, in 15 minutes enough serum will be available. A drop of this is pipetted off on to a glass slide. A drop of the donor's blood is added to about twenty times its volume of saline, and a drop of this suspension is added to the drop of recipient's serum. If no clumping occurs, all is well.

In our Isle of Wight Blood Transfusion Service, we have the following number of donors:—

Group	AB	A	B	O
Peace time donors	2	18	2	18
War emergency donors	7	113	20	100

The sincerity and cheerfulness of these good people is most impressive. In the rest of the country, only group O donors have as a rule been enrolled, for simplicity in organisation. This overflow of group O seems to be an unfortunate necessity, for time might prove too short for grouping casualties.

AGIN THE GOVERNMENT

IN his frank, lively and altogether unconventional autobiography ("All Too Human." London: Peter Davies. 1939. Pp 381. 8s 6d) Colonel Owen Berkeley-Hill discloses himself as an enfant terrible constantly at grips with constituted authority. Most of his life, in the words used by Sydney Smith to describe his own, he has been "like a razor, either in hot water or a scrape." Starting with his childhood and adolescence, he goes on to depict his early sex life, explains how he came to take up psychiatry, and recounts his experiences in the Indian Medical Service and, during the last war, in East Africa. The story of his fight with apathetic bureaucracy to improve the appalling condition of the old "lunatic asylum" at Ranchi is stimulating. In later chapters he tells of his entirely successful marriage to an Indian lady and of his love of children and horses. The enfant terrible asserts itself again in his account of how he deserted a sight-seeing party on a visit to Washington, choosing to watch a game of polo rather than visit the famous cemetery at Arlington. Coming at this time of intense racial propaganda, his remarks on miscegenation are interesting and might provide food for thought if they could be introduced into Germany by the Royal Air Force.

TUMOURS OF THE FRONTAL LOBE

IN a long article profusely illustrated with diagrams, photomicrographs, and encephalograms, Prof. Alejandro Schroeder (*Ann Fac Med Montevideo*, 1939, 24, 121) reviews the anatomy and histology of the frontal lobe and the symptomatology of lesions in that area and describes 18 new cases of frontal-lobe tumours. He concludes that the signs and symptoms of these tumours depend more on the concomitant cerebral œdema than on the anatomical relations of the tumour or its degree of malignancy. In his view mental changes are commonly associated with a tumour in the frontal lobe because this lobe occupies a large space and is exceptionally rich in white matter which is the cerebral tissue most subject to œdema. The œdematous frontal lobe then presses on the main blood-vessels and disturbs the circulation of the whole brain, and it is this disturbance that produces the clinical picture. No clinician, says Professor Schroeder, should therefore attempt to diagnose a tumour of the frontal region on signs and symptoms alone; the diagnosis must rest on careful ventriculography.

A MURDER STORY

IN Belton Cobb's latest thriller ("Death Defies the Doctor." Longmans, Green and Co. 1939. Pp 280. 7s 6d) Cicely Cork, a crassly stupid young woman with a pronounced father-fixation, became engaged to Donald Galt, a veterinary surgeon of surpassing physical attractions but lamentably lacking in moral health. Cicely's invalid father, suffering from rheumatoid arthritis and inoperable carcinoma of the stomach, is scheduled by a "specialist" to live for a year or more but dies prematurely from an overdose of morphia. This diagnosis is made, apparently in a lucid interval, by the absent-minded Dr Critchley—surely one of the most imbecile practitioners of fiction—who stands to gain a large sum by the premature demise of his patient. Galt, knowing nothing of this, is anxious that the old man should die as soon as possible so that he can marry Cicely for financial reasons. Doctor, vet, daughter and devout maidservant are all more or less suspect and Superintendent Holt, who should never have attained that lofty rank, is completely defeated by the problem. It is to be hoped that the reader will have less difficulty than had Detective Inspector Burmann in spotting the guilty party in this ingeniously told tale.

---

[1] Lancet, Oct 21, 1939, p 9[illegible]

DENTAL CARIES

IN a paper read at the annual meeting of the British Dental Association (*Brit. dent. J.* 1939, 67, 376) Dr B. Gottlieb suggests that future research on the ætiology of dental caries should first be directed to the question whether certain qualities of the saliva are connected with immunity from and susceptibility to that disease. If such is the case, the next step would be to find how these qualities could be influenced by diet or drugs. He is by no means the first to make this suggestion, for many have suspected that in variations in the saliva lies the explanation of the temporary liability to dental caries which accompanies impaired health and nutrition This line of research has up to now received small support in this country, partly owing to its technical difficulty and partly because some preliminary investigations carried out under the direction of the Dental Investigation Committee of the Medical Research Council were difficult to interpret In the American schools, on the other hand, much accurate information has been obtained and standard methods of estimation have been devised; and there is reason to believe that further progress is in sight.

BRAIN SURGERY NEAR THE FRONT

WAR-TIME cranio-cerebral projectile wounds were discussed at meetings of the *Académie de Chirurgie* in October, the principal speakers being Dr. de Martel and Dr. Clovis Vincent Dr. de Martel pleaded for the organisation of special operative facilities for cranio-cerebral surgery near the front, and pointed out how much modern neuro-surgery could do for wounded in this category in a great military offensive if it could be applied within a brief interval of the infliction of these wounds. He said he had already collected funds sufficient for equipping three cranio-cerebral operative units whose instruments were costly enough. Dr. Clovis Vincent maintained that if conditions were favourable for intestinal surgery it should also be possible to do brain surgery.

POPULAR PÆDIATRICS

Writing as "one mother to another," Mrs. Holmes, the *Evening Standard* nursery expert, sets out (First Baby. Blackie and Son 1939. Pp. 177. 3*s* 6*d*.) in attractive style theoretical guidance for the young mother, after a shaky start with an introduction which seems confused about instinct. She is unfortunately inaccurate on the fundamental subject of cow's milk. In discussing the grades she omits altogether the "Accredited" varieties and displays a touching faith in the complete safety of "Certified (Tuberculin Tested)," so that she recommends it unboiled for babies over three months of age. The term "pure cow's milk" is used far too vaguely, and for some unexplained reason the expectant mother is told to drink unpasteurised milk. These blemishes are serious in a work designed for the ignorant mother A careful revision would turn it into a practical and valuable handbook.

DIARIES

The Anglo-French Drug Co, 11, Guilford Street, London, W.C 1, have sent us a useful tear-off calendar for the desk. There is a page for each day of 1940, and the small strip of advertisement at the foot of each leaves a generous space for important memoranda and revealing doodles.

The Dental Manufacturing Company, 97, Great Portland Street, London, W.1, have issued a diary of appointments for dentists. Each page is ruled for quarter-hourly appointments, and with three days on each side the book opens to show a complete week's work at a glance. There are 16 pages of references, tables, and data at the front of the diary and a detachable address book at the back. There is no advertisement matter, and the price is 6*s* 6*d*.

BALL GAMES

GYMNASTIC teachers, club leaders, athletic coaches and all who have to train or recreate boys and men should read Mr. Major's little book.[1] The medicine-ball has only recently been introduced into this country, chiefly by Bjorneby and Harper in their Britnor recreational gymnastics. The idea has gained popularity and Mr. Major gives many photos of exercises for individual or group work, and a section on team games with diagrams. The weight and size of the ball is a matter of choice (they range from 1 to 9 lb.) so that children and girls may also enjoy this form of exercise. It can be graded from light to exceedingly strenuous play. As a training in skill, accuracy and control for field games it should be invaluable. If introduced as a means both of recreation and keeping fit for some of our present "waiting units" on duty with searchlights or anti-aircraft guns, it would probably be popular. In any stationary camp or unit it might be well worth while to offer this new indoor or outdoor recreation to the men.

OUR DESK COMPANION

THE MEDICAL DIRECTORY 1940 reaches us well before the end of the year. The gratifying change in type is making progress and has now reached p. 1046, but at the same time the newly set portion is undergoing beautification. Bold headings make the local London list easier to find one's way about in and the London hospitals, other than those of the teaching schools, are getting the importance they deserve. All this must mean costly revision, but it does enhance the value of the directory. Moreover the economy of space prevents the volume becoming unwieldy and only displeases those who want to make marginal notes. There are 1738 more names in the directory this year than last—an almost unprecedented increase—and it is not the fault of the editors that so many of the addressees are elsewhere The price remains at 42*s*. from Messrs. J. & A. Churchill.

FITNESS WITHOUT FLESH

Mr. Stanley B. Whitehead, D Sc., is a vegetarian and like most vegetarians he has never thought through the implications of his beliefs nor tackled his metaphysics satisfactorily. In the foreword to his "Everyday Fare for Fitness" (John Lane, The Bodley Head. 1939. Pp. 166. 5*s*.) he writes: "Furthermore, each of these foods" (fruits, vegetables, white grain cereals, nuts and dairy foods) "is chemically and biologically balanced by the master hand of Nature for our use." Such is one of his premises, stated dogmatically, just like that (The scientist might say that the original wheat berry, found on Sinai, was chemically and biologically balanced for the nutriment of the wheat embryo but hardly for the nutriment of man.) Yet we find him advocating as a regulatory food "Bemax (wheat germ) and similar naturally derived products." He recommends charcoal after a meal and puts Worcester sauce into an autumn salad What is there chemically and biologically balanced about charcoal and Worcester sauce? "Olive oil," he says, "is a useful adolescent food, as it lubricates the internal membranes of the abdomen and also soothes the activity of the genital organs." How does he know such things? And what does "Berry drinks are blood enriching" mean? None the less, a cook will find some intersting suggestions among his recipes. His salads read attractively and there is much sense at the back of his rules for controlling weight.

CORRIGENDUM.—The title of the book by Dr. W. T. Vaughan reviewed on page 1223 of our issue of Dec. 9 is "Primer of Allergy."

---

[1] Medicine-Ball Exercises and Games By E Major, warden, Carnegie physical Training College, Leeds. London: University of London Press 1939. Pp. 98. 3*s*. 6*d*.

ADDRESSES AND ORIGINAL ARTICLES

THE DARK-ADAPTATION TEST

ITS RELIABILITY AS A TEST FOR VITAMIN-A DEFICIENCY

By Leslie J Harris, Sc D, D Sc, Ph D, F I C

AND

M A Abbasy, Ph D M B

NOW LECTURER IN NUTRITION, DEPARTMENT OF HYGIENE AND PREVENTIVE MEDICINE, UNIVERSITY OF CAIRO

(*From the Nutritional Laboratory University of Cambridge and Medical Research Council*)

THE work described in this paper was carried out in November–December, 1937, and a summary of it was communicated to the Biochemical Society in 1938 (Abbasy and Harris 1938 see also Ahmad and Harris 1938) In view of current interest in the problem it seems worth while to give a more detailed account of our experimental data It may be of particular interest to do so now, because investigations at the Rowett Institute during the past year (Thomson et al 1939), in which a different technique was adopted for the test, have led to rather different conclusions (we are indebted to Sir John Orr for kindly keeping us in touch with this work), and it may be that a consideration of the various types of procedures and a general discussion of the whole problem may help towards further refinements in the method of test

In earlier work (Maitra and Harris 1937) about 200 poor class children attending elementary schools in the east end of London and in Cambridge were examined by a dark adaptation test with the Birch Hirschfeld photometer, and roughly 40–50 per cent were found to be normal, about 20–30 per cent "slightly below normal," and the remaining 20–30 per cent "definitely subnormal" In control tests children with subnormal adaptation improved when given vitamin A but not otherwise Of 30 better fed public school boys examined for comparison at the same time, 27 were normal and only 3 "slightly below normal" This high incidence of subnormality among children attending elementary schools was in accordance with the results of dietary surveys—e g, that of Orr (1936)—which indicate that a considerable proportion of the poorer classes in this country receive less than their reputed optimal requirement of vitamin A It corresponded also with our impressions of the dietary history of many of these children

In this earlier paper some of the possible sources of error in the technique of the dark adaptation test were discussed, and precautions were described which ought to be adopted before the results could be regarded as reliable It seemed to us advisable to make a further study of some of these potential errors, particularly since Palmer and Blumberg (1937) and Snelling (1936, 1938) were unable to secure satisfactory results with an alternative method, by the Jeans and Zentmire biophotometer We believe that our further investigation shows that the dark adaptation test, although capable of refinement in many details, is sound in principle, provided that certain precautions are taken and adequate control tests are made A further reason for the present work was a desire to estimate the incidence of deficiency of vitamin A in an unselected group of children attending a single [illegible] school The previous data (Maitra and Harris 1937) were obtained principally from children visiting school clinics generally for minor ailments or injuries The incidence of subnormality in comparable groups of children has been found to be of the same order in this new survey as in the earlier work

Since the preliminary publication of the present work (Abbasy and Harris 1938) more reports have appeared, most of the writers accepting the view that there is a correlation between diminished dark-adaptation and deficiency of vitamin A, and that this may be made the basis of a test (Wald, Jeghers, and Arminio 1938, Booher et al 1939, Hecht and Mandelbaum 1938, 1939, Haig, Hecht, and Patek 1938, McKenzie 1938, 1939, Booher and Williams 1938, Juhász Schüffer 1938, Hames 1938, Groth Petersen 1938, Gantzel 1938, Ditchburn 1939, Pett 1938, Stewart 1939, Kimble and Gordon 1939 Bigwood 1939, Getz et al 1939, Drigalski et al 1939, Abramson and Osgaard 1939) Those who criticise the method have, almost without exception, worked with the biophotometer (Palmer and Blumberg 1937, Palmer 1938, Snelling 1938, Isaacs et al 1938 Schuck and Miller 1938) Palmer (1938) remarked that the principle of a dark adaptation test seemed sound, but the particular method which he investigated was unsatisfactory

We assume that a deficiency of vitamin A does, in fact, lead to diminished powers of dark adaptation It has now been repeatedly shown that human subjects restricted to a diet low in vitamin A show consistently a drop, gradual or rapid, in their powers of adaptation, and that the symptom can be cured (intermittently, if so desired) as often as vitamin A is restored to the diet (Wald, Jeghers, and Arminio 1938, Booher et al 1939, Pett 1939, Jeghers 1937, Hecht and Mandelbaum 1938, Fridericksen and Edmund 1937, Edmund and Clemmesen 1936) The observations of Lindqvist (1938) seem equally conclusive, he has shown that, when the concentration of vitamin A in the blood-serum falls below 70 I U per 100 c cm, dysadaptation always develops Again, in animals—e g, calves—nyctalopia has been shown to be a specific symptom of lack of vitamin A (Moore 1939) Our surveys have indicated that there is a correlation between dark adaptation and the past diet, and that in control tests subjects found to be subnormal have become normal after treatment with vitamin A but not otherwise Our object, then, is to present the evidence indicating that such dark-adaptation tests seem reliable in principle, but at the same time we suggest further study, especially for improving the details of the technique

TECHNIQUE

Principle of method—The dark adaption test is based on the observation that with a defective intake of vitamin A the ability to see a dimly illuminated object in a dark room is diminished, or the *rate of recovery of such power, after a period of exposure to bright light, is delayed* The explanation most generally accepted is that the visual purple of the retina is a derivative of vitamin A, hence its rate of regeneration depends on an adequate supply of the vitamin Probably this explanation is a somewhat over simplified *description of the more elaborate* series of reactions involved, but this consideration need not necessarily affect the value of the test (For literature on vision in relation to vitamin A see Hecht 1937, Wald 1935 Wald and Clark 1937, [illegible] and Sidwell 1938 Tansley 1939)

Apparatus used—The equipment used both in the preliminary exposure to brilliant illumination and for determining the minimum of visual perception subsequently, was, except for certain improvements referred to below, similar to that described earlier (Maitra and Harris 1937). The subject gazes for 5 min at the centre of a large white screen placed 3 ft. in front of him, illuminated by a 150-watt lamp and metal reflector placed immediately over his head. (In contrast with some other procedures and for reasons discussed below, we omit any preliminary dark-adaptation, the child being exposed to the bright screen immediately he leaves the normal lighting of the class room) After the lapse of the 5 min. the lamp is extinguished, and the threshold value is measured with a Birch-Hirschfeld photometer,* first with as little delay as is consistent with an accurate reading (say, 30–45 sec) and then after a wait of 10 min in complete darkness (In later work we took readings every 3 or 5 min. up to 20 min. and timed the first reading with a stopwatch) During these readings the Goldberg wedge is kept at position 5, except when, with a "good normal" subject, a diaphragm reading of 2 or under is shown for the 10-min value, and the wedge can then be pushed up to 6 or beyond. Normal subjects give a curve like N in fig 1, and subjects with increasing deficiency like D, DD, and DDD

The principle of the Birch-Hirschfeld photometer is well known. In the dark-adaptation test the subject sees five spots of light arranged as in fig. 2, those to the left being more brightly illuminated than those to the right. The intensity of the illumination of the spots is gradually diminished, until first only three spots can be distinguished, then only two, then none. The reading is taken at the point when the subject can just barely distinguish three out of the five spots previously visible, this reading being checked and rechecked (this additional check is an important safeguard in the procedure) by the fact that, when the operator in turn increases and diminishes the transmitted illumination by one grade in either direction, the subject should state that five spots and two spots respectively are visible.

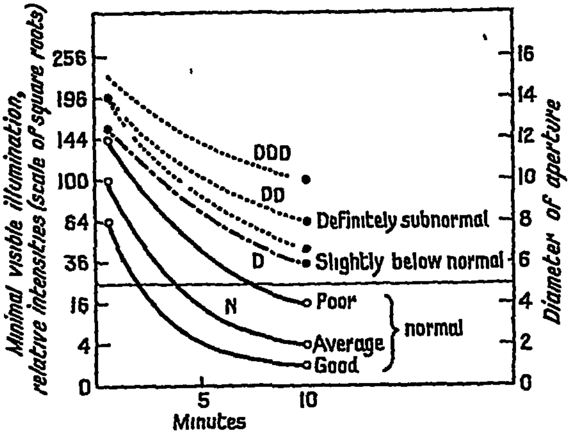


FIG 1—Schematised diagram, showing dark-adaptation after exposure to bright light, to illustrate the standards accepted for the present work, a 10-min. reading of aperture-value of 6 and over being taken to indicate deficiency. (No representation is made of the point of inflexion marking the transformation from cone vision to rod vision, the position of which on the curve depends on the wave-length of the light. In these experiments the so-called neutral light transmitted by the Goldberg wedge was used)

Standards—The value to which we attach crucial importance is the second reading, taken after 10 min. in the dark, and not the initial reading taken almost immediately after the exposure to light. The reason for this is that during the initial reading the threshold value is changing so rapidly after the exposure to the light that it is difficult to assess it accurately—in fact, the results depend largely on the speed with which the operator works With the 10 min reading, on the other hand, the threshold value has become more stabilised and it may be determined deliberately and then rechecked with care A diaphragm reading of 2 or 4 (the Goldberg wedge being set at 5) for this second reading is accepted as normal, and readings of 6 or more are classed as subnormal. This criterion seems justified by the results described below, where it is shown that values of 2 or 4 (or under) were almost always reached by the deficient subjects after they had been receiving large doses of vitamin A for a sufficient period of time (By a reading of under 2 is meant that with the diaphragm at 2 the Goldberg wedge may be moved to a still more opaque position—i e, 6 or 7.) It must be clearly understood that in this procedure we are not concerned with assessing with precision ordinary low readings as given by good normal subjects or in the final thresholds, after more prolonged dark-adaptation Our object has been rather to detect the abnormally high values, outside the range of normal variations, as given by deficient subjects. Notwithstanding its relative crudeness, the method seems adequate for this particular purpose

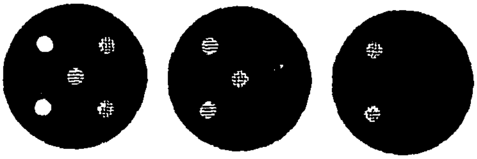


FIG 2—Quincunx used in Birch-Hirschfeld photometer. The reading is taken when three spots are visible (central illustration), increased illumination causing five spots (left) and diminished illumination two spots (right) to appear.

The usual reading for a normal subject is 2 or 4 for the 10-min. reading; combined with 6–10 for the initial reading

It is true that an abnormally high initial reading often helps to confirm the finding of a high value for the 10-min. reading; and for convenience and to conform with the standards referred to in the earlier paper we have again divided our subnormal readings into two further classes—namely, "slightly below normal" and "definitely subnormal." A final reading of 6 combined with an initial reading of 10 or 12 is called "slightly below normal" or "border line" but with an initial reading of 14 or over is "definitely subnormal." Values of 8 or over for the 10-min. reading are classed as "definitely subnormal" irrespective of the initial reading.† It is not pretended that any absolute significance can be attached to this subdivision of the deficient cases, and it is to be regarded as nothing more than roughly qualitative and not strictly quantitative. A diagnosis of "definitely subnormal" based on a reading of 8 is no doubt secure enough; but the difference between "definitely subnormal" and "slightly below normal," when both are based on a reading of 6, may fall within the experimental error, so that considerable overlapping is possible. With further improvements in technique a more satisfactory set of standards can be worked out. In the meantime it is understood that this rather arbitrary system of subdivision of the subnormal cases is given merely for the sake of comparison with earlier results.

---

* The model we used was of the original pattern, supplied by Messrs Carl Zeiss (London) Ltd in 1936, and we find it preferable to a more recent type now available

† As mentioned in an earlier paper (Maitra and Harris 1937), combinations of normal 10-min. readings with very high initial readings are rare and have not been encountered in this work They have, however, been observed in some later experiments in which the first reading was made with great rapidity. We think it safer not to regard these values as subnormal

Special features of technique.—Although the method of measuring dark adaptation was in principle the same as that previously described (Maitra and Harris 1937) several refinements were incorporated, of which the three following were perhaps the most important.

(1) To minimise the "learning factor," each subject was made thoroughly familiar with the use of the photometer before the start of the test proper, and no value was accepted until he had recorded the same or a neighbouring reading repeatedly and consistently (see below).

(2) For the light-adaptation a screen covering a large area (about 6 ft. square) was used, and the subject was directed to fix his gaze on a circle lightly marked in the centre of it. The object was to ensure that all parts of the retina were exposed to the bleaching action of the light and to procure an adequate and standardised degree of illumination (see below). Care was taken to see that the subject's eyes were open during the whole period of exposure to light and fixed on the centre of the screen.

(3) To direct the child's attention to the exact position of the faintly illuminated spots of the photometer, his face was placed inside a hood opening into a cylindrical tunnel 9 in. in diameter and 2 ft. long, at the far end of which and immediately facing the child the photometer was fixed.

As before, all tests were carried out in a completely darkened room. The hood placed over the child's head prevents any interference by stray light.

To avoid unintentionally influencing the child, it is important that no leading questions be asked. The child is merely requested to say, after each movement of the lever (or sometimes with no movement), how many spots are visible. The reading is taken as soon as the same reply—namely, "three spots"—is returned at each repetition on the same position, and when, with a diminished and increased illumination respectively, the answers are constantly "two spots" and "five spots" ("one spot" and "four spots" respectively are sometimes answered and accepted).

POSSIBLE SOURCES OF ERROR

The following are some of the more important of the possible sources of error:

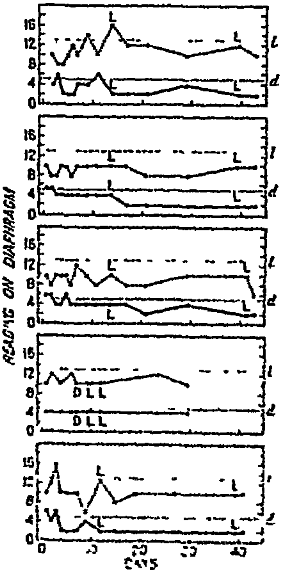
1. Improved performance resulting from increasing familiarity with the instrument ("practice" factor).
2. Minor variations in standards of normality.
3. Inadequate or unsuitable illumination during the period of light adaptation.
4. Delay in taking the initial readings after light adaptation.
5. Partial lack of objectivity of the method.
6. Inapplicability of the method to dull, mentally backward, unbalanced, or deaf subjects or to too young children.
7. Inapplicability of the method to subjects with gross or uncorrected errors of vision.
8. Effect of variations in exposure of the subject to light before the start of the test.
9. Inaccuracy or lack of sensitiveness of certain types of photometer.

Improved performance resulting from increasing familiarity with instrument.—The obvious method of reducing this source of error to its minimum is to make the child familiar with the instrument in a series of preliminary trials before exposure to the bright screen in the first test, and in no circumstances to record an initial reading until one is satisfied that the child repeatedly and consistently gives an answer of the same order. This is best done after a few minutes in the dark, so that dark adaptation has become fairly well stabilised. In the earlier work (Maitra and Harris 1937) it was our practice to explain the use of the photometer to the child before the test; but it is evident that it is an advantage to go a step farther than this and to continue such trials until consistent readings are yielded. The fact that on each occasion an increase of one unit in the degree of illumination causes five spots to become visible in place of the original three, and a decrease of one unit reduces the number of spots to two, enables the result to be checked with some accuracy.

Minor variations in standards of normality.—There can be no doubt that different normal subjects (or the same subject) may vary appreciably in their rate of dark adaptation (see table I and fig. 3) and it may be difficult, therefore, to fix absolute standards defining with precision the exact limits of normality. On the other hand, we think that there is no doubt that the standards which we have taken as representing deficiency are sufficiently far removed outside the ordinary normal range of variation to run little risk of including any appreciable number of normal cases.

It must be remembered that the intensity of illumination varies as the squares of the diaphragm openings; hence the diaphragm readings of 8 and 6 and over taken to represent deficiency, as against readings of 4 and 2 and less for normality, mean intensities of 64 and 36 and over for the deficient subject as against 16 or 4 or 1 and under for the normals—e.g., a typical reading for a deficient subject

FIG. 3



Examples of repeated tests on 5 normal adults under ordinary conditions and after an occasional exposure to bright sunlight (L) or to darkness (D). The upper curves denote readings taken immediately after the light, the lower readings after 10 min. dark adaptation. The 10 min. readings are used to decide whether there is any deficiency in dark adaptation, readings of 4 or under (line marked d) indicating normality. The upper (light-adapted) curve is regarded as less reliable because of its rapid rate of change and the difficulty in timing it. Values for the light adapted readings are usually not greater than 12 (line marked l).

TABLE I—CONTROL TEST ON NORMAL ADULTS

Date in 1937	Photometer readings*					
	Subjects—					
	I	II	III	IV	V	VI
Preliminary control period, normal diet—						
Oct 12	8, 4	8, 2	8, 6	10, 2	12, 2	8, 2
„ 13	6, 2	8, 4	8, 4	8, 4	12, 4	8, 2
„ 14	7, 2	8, 2	8, 4	8, 2	12, 2	—
„ 16	8, 2	6, 2	8, 4	8, 2	10, 4	—
„ 18	6, 2	6, 2	8, 4	8, 2	12, 2	—
„ 20	8, 2	8, 2	8, 2	8, 2	12, 4	—
„ 21	6, 2	8, 2	8, 2	8, 2	10, 2	—
„ 22	8, 2	8, 2	8, 4	8, 2	10, 2	—
„ 25	8, 2	8, 2	8, 2	8, 2	10, 2	—
„ 27	8, 2	8, 2	8, 2	8, 2	10, 2	—
17,000 I.U per person now given daily for 3 weeks except to subjects IV and VI.						
Dec 18	6, 2	6, 2	8, 2	8, 2	8, 2	8, 2

* In each entry the first value is the initial reading (after about 30 sec), second value after 10-min dark-adaptation , all taken with Goldberg wedge at 5.

is 8 before treatment as compared with 2 after treatment with vitamin A (relative intensities of 16 to 1).

A still more cogent argument to justify our conclusion, that the standards chosen for deficiency exclude the ordinary run of normal cases, is that the subjects found deficient did, in fact, usually return to within the normal range after treatment with vitamin A but not without such treatment. Probably a juster criticism is that the standards may be unduly lenient, but it seems preferable to err on the side of conservatism.

A series of control tests were done on a group of middle-class adults, among whom we found dysadaptation to be rare as compared with poor-class schoolchildren (see also Maitra and Harris 1937), to ascertain whether the ‘ normal ” values were improved after large amounts of vitamin A had been ingested. Negative results were obtained (table I)

Inadequate or unsuitable illumination during the period of bleaching —The intensity of the lighting and the length of the exposure should be not only constant but also sufficient to counteract, so far as is possible, any delayed effect of previous variations in the environmental lighting depending on whether the child had been kept in a poorly lighted room or exposed to brilliant sunlight before the test. Further, the lighting should bleach a large area of the retina and not merely a central patch It is with these considerations in mind that we have (1) used the intense illumination of a 150-watt lamp, (2) taken a large screen, placed near the child, (3) instructed the child to keep his eyes fixed on the circle drawn near the centre of the area of illumination, and (4) kept observation on the child throughout the period of bleaching to ensure that his eyes did not stray and were indeed kept open. (We have been surprised to find in practice how necessary this last precaution is)

As mentioned below, an apparent weakness in the alternative “ biophotometer ” instrument is that the screen is small and not brilliantly illuminated and, because of the hood, it is impossible to watch the child’s eyes

Delay in taking initial readings.—The visual threshold changes very rapidly after the exposure to the bright light, and the value obtained depends entirely on the speed with which the reading is taken. Since our crucial criterion is the second reading, taken after 10-min dark-adaptation, this difficulty is largely circumvented In later tests (Ahmad and Harris 1938) we controlled the first reading by timing it with a stopwatch and took additional readings at intervals of 3–5 min In the tests described in the first part of the experimental work the “ initial readings ” were taken within approximately 30–45 sec. from the extinction of the light.

Lack of objectivity —One of the principal objections to the dark-adaptation method is that the test is subjective , but this is not so serious as might at first sight appear. As has already been made clear, one has in practice a considerable degree of control on the veracity of the subject First, in the course of the repeated trials it can be ascertained whether the child is giving consistent answers Secondly, the accuracy of each single reading is checked by ascertaining whether the child gives the right answer when, unknown to the child, the illumination has been increased or diminished by one stage This procedure seems to us to have an advantage over that employed in an alternative method, whereby the child is asked to continue gazing into the darkness and to report at the moment when a dimly illuminated sign or letter first becomes visible to him—i.e., the degree of illumination kept constant and time taken as the variable factor—for by this latter procedure the reading is not cross-checked by additional readings just above and just below the threshold value. (This difficulty is overcome by the procedure used by the Rowett workers.) There is also the factor of visual fatigue, with an inevitably greater lag in returning the answer—i e , it is harder to fix the moment when a dimly illuminated object slowly becoming visible is first seen than the moment when an object already perceived disappears, as it is quickly dimmed to vanishing point.

Inapplicability of the method to dull, mentally unbalanced, backward, or deaf subjects and too young children.—In our experience of surveys on groups of school-children the proportion which has had to be ruled out as dull, backward, unbalanced, or deaf has been too small to be of any practical consequence. In two instances the return of inconsistent answers

TABLE II—INFLUENCE OF PREVIOUS LIGHTING ON RESULT OF PHOTOMETER TEST

Subject	Conditions immediately preceding bleaching	Diaphragm readings for three spots (Goldberg wedge at 5 unless otherwise stated)		
		At 5 min	At 10 min.	At 20 min.
		after bleaching		
I	15 min. in intermittent sun .	4	2	<2*
	30 min in dark room . (= after preceding test)	2	<2*	<2*
II	15 min in dark room	2	<2*	—
	20 min gazing at bright summer sky	4	2	—
III	Working in laboratory .	6	4	2
	1 hour in intermittent sun .	10	4	2
	20 min in dark room . (= after preceding test)	4	4	2

* Readings entered as <2 indicate a diaphragm reading of 2, with the wedge moved to 6 instead of kept at 5.

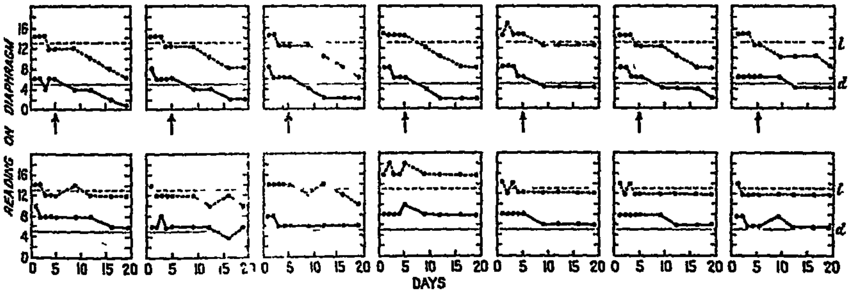


FIG 4—Repeated photometer tests on 14 subnormal boys   Top row, 7 boys treated with vitamin A 17,000 I U daily (arrow indicates start of treatment)   bottom row, 7 controls   Upper curves, readings after exposure to light; lower curves, readings after 10 min dark adaptation   Lines *l* and *d* as in fig 3   The first 5 days before treatment were used to assess the "learning factor"   Note that all the treated boys return to normal, whereas the untreated boys remain subnormal, although often showing some improvement on increasing familiarity with the test

by the subject under test has given us the first clue to poor mental calibre, later confirmed by their guardians   As mentioned previously, we do not consider the method suitable with children under the age of about 11   To some extent the unsatisfactory results obtained by Snelling (1936) with the biophotometer may have been due to the use of too young children

TABLE III—DARK ADAPTATION TESTS ON BOYS, AGED 11–13, IN A POOR DISTRICT

Boys examined	100	Found "slightly below normal"	34
Found normal	43	Found "definitely subnormal"	23

Inapplicability with gross errors of vision—Here again, for purposes of surveys, we have experienced no difficulty in ascertaining from the school medical service the results of previous ocular examination and in excluding the small percentage who, because of gross defects, were regarded as unsuitable for test

Effect of previous exposure to light—Theoretically, the power of perception in the dark or the rate of regeneration of such power may be expected to depend not only on the intensity of the *bleaching* during the preliminary "light" period but also on prior exposure to sunlight or to artificial illumination   Such an effect has been reported by several workers (Thomson et al 1930), and we have confirmed its existence (table II)   but we have not found that it had any important influence on the tests done with our technique   In other words its maximal effect in our tests was insufficient to bring a normal subject outside the range of our accepted normal standards   Experiments were done on adults exposed for long periods to bright sunlight, and the data were compared with the results obtained on rising in the morning with the eyes protected by dark goggles or while at work indoors in the laboratory in the usual way (see also fig 3)   The most probable explanation for this relatively negative result is that our standards of deficiency give a sufficiently generous margin to rule out minor influences of this kind   Another reason may be that the intensity of the preliminary exposure and the length of the wait in the dark are sufficient to neutralise largely the effect of previous variations   A possible criticism of these control tests however is that they were done mostly on adults, and in our surveys subnormal dark-adaptation values have been found relatively rarely in adults as compared with children   Further observations on this question are urgently needed

According to the technique introduced by Thomson et al (1930) all subjects normal and subnormal, are first given, before "bleaching," a variable period of preliminary dark adaptation (a longer period for subnormal subjects and a shorter one for normals) until a state of virtually complete dark adaptation has been attained   We have not adopted this procedure   In fact, an objection to it is that it may tend to equalise the values of deficient and normal subjects   In other words, the longer dark adaptation given to deficient subjects than to normals allows a greater degree of recovery and resynthesis to the deficient than to the normal subjects, hence differences will be lessened   Here again more work is needed to assess the possible effect of such variations in experimental conditions

Inaccuracy or lack of sensitiveness of certain instruments—We incline to the view that so far as the biophotometer of Jeans and Zentmire is concerned, one of the principal drawbacks is probably the inadequate size and the insufficient illumination of the screen used for preliminary "bleaching", and the hood makes it impossible to observe the child's eyes   Although the object of the hood is said to be to permit observations to be made without a dark room, we have not been able to satisfy ourselves of the reliability of doing so

The procedure we have employed, although admittedly relatively crude in some respects, seems to exclude several of the more obvious difficulties—e g, the amount of bleaching appears to be adequate and covers a wide portion of the retina   the subject's attention is directed to the position of the quadrant instead of searching for it in the dark, the readings can be checked by alternative widening and narrowing of the diaphragm, and variations in previous exposure to light do not seem to have an important effect

At the same time it must be recognised that the measurement of dark adaptation is in its early stages and there is still room for refinement in the procedure and the instrument. Among the improvements which we propose are (1) the standardisation of the bleaching screen and of the test [illegible] to be measured in photometric units in place of the present arbitrary lighting with standard lamps,‡ and (2) the taking of readings after a series of intervals during adaptation so as to form a time curve An instrument of the type recently described by Hecht and Shlaer (1938) seems to overcome the defects already discussed and to have other advantages also Another desideratum, which will be referred to again later, is to control the results where possible by determining the vitamin-A content of the serum.

RESULTS

In the main experiment to be described, conducted in 1937, 100 boys, aged 11–13, in the upper forms at an elementary school in the poorest area in Cambridge were examined. Previous experiments (Maitra and Harris 1937) have shown that at this age they are old enough to cooperate intelligently, and that a deficiency is more likely to be present—at least as detected by the dark-adaptation test—than at a later age.

The results of the first part of the experiment are summarised in table III, which shows that of the 100 boys 43 were adjudged to be normal, and that by the somewhat arbitrary system of classification mentioned above 34 were "slightly below normal" and 23 "definitely subnormal." These conclusions were then checked by further *control tests* as follows

TABLE IV—CONTROL TESTS ON "DEFINITELY SUBNORMAL" BOYS

Treated with vitamin A			Not treated		
Case	Reading at start of expt.	Reading after 2 weeks' treatment with 17,000 I.U. of vitamin A daily	Case	Reading at start of expt	Reading at end of 2 weeks
1	14, 6	6, <2	12	14, 8	12, 8
2	14, 8	8, 2	13	14, 8	12, 6
3	14, 8	6, 2	14	14, 8	12, 6
4	14, 8	8, 2	15	16, 8	16, 8
5	14, 8	8, 2	16	14, 10	12, 6
6	14, 6	8, 4	17	14, 6	10, 6
7	14, 6	8, 2	18	14, 8	10, 6
8	14, 8	8, 4	19	14, 8	12, 6
9	14, 8	12, 4	20	14, 8	14, 6
10	16, 8	10, 4	21	14, 6	12, 6
11	14, 6	10, 4	22	14, 8	14, 8

TABLE V—CONTROL TESTS ON BOYS "SLIGHTLY BELOW NORMAL"

23	12, 6	8, 4	40	12, 6	10, 6
24	10, 6	8, 2	41	12, 6	12, 6
25	12, 6	10, 6	42	12, 6	14, 6
26	12, 6	10, 2	43	12, 6	12, 6
27	12, 6	8, 4	44	12, 6	10, 6
28	12, 6	8, 2	45	12, 6	12, 4
29	10, 6	6, <2	46	12, 6	12, 4
30	12, 6	10, 4	47	12, 6	12, 6
31	12, 6	8, 2	48	12, 6	12, 6
32	12, 6	6, <2	49	12, 6	12, 6
33	12, 6	8, 2	50	12, 6	10, 6
34	10, 6	6, <2	51	10, 6	12, 4
35	12, 6	8, 2	52	12, 6	12, 6
36	10, 6	6, <2	53	12, 6	10, 6
37	12, 6	8, 2	54	12, 6	12, 4
38	12, 6	8, 2	55	12, 6	12, 6
39	12, 6	8, 2	56	12, 6	14, 6

In each column the first value is the light-adaptation reading, and the second value the reading after *10-min* dark-adaptation The numerals indicate diaphragm openings with Goldberg wedge set at 5, except that an entry "<2" indicates that the wedge could be moved up to 6.

Half of the boys found to be "slightly below normal" or "definitely subnormal" were given vitamin A (capsules of halibut-liver oil) 17,000 I.U. daily by mouth. The other half were not treated and served as controls All of these were examined both at the beginning and at the end of the period of treatment Further, 14 of the "definitely subnormal" (7 from the treated group and 7 controls) were examined more intensively, being tested on five consecutive days before the beginning of the treatment, to assess still further the "learning factor" and the day-to-day variations, and twice weekly during the period of treatment. Fig 4 shows the result of the repeated retesting of these 14 "definitely subnormal" boys. During the preliminary period, in which no vitamin A was given, although a slight improvement was generally observed, it was of little significance and never sufficient to alter the classification to one of normal. The boys receiving vitamin A all began to improve considerably, and by the end of the fortnight's treatment all had reached readings within the normal range, most of them being in the zone for "good normals"—i e, 2 or less for the crucial *10 min* reading, and 6 or 8 for the initial reading By contrast, the untreated controls, although generally showing a slight improvement, all remained subnormal, with values of 6 or over for the 10-min. reading, and in most instances values of 10 and over for the initial reading.

The slight improvement in the untreated controls in this particular experiment was generally sufficient to change the classification just over the border from "*definitely subnormal*" *to* "*slightly under normal*." This finding confirms the conclusion already given: that the distinction between "definitely subnormal" and "slightly under normal" may often be crude and arbitrary, and of little practical importance.

On the other hand, we feel that the limit set for normality—namely, 10-min. readings of 4 and under as against 6 and over—is real, for the treated controls and the normal adults all fell within this normal range, with one exception only (tables I, IV, and V and fig. 4). Indeed the standard of normality taken is probably lenient, for a large proportion of the treated subjects become "good normals" with readings of 2 or under. In any case, the main conclusion remains unaffected; that in these experiments the low subjects who were treated showed a considerable response, whereas the untreated controls showed relatively little (tables IV and V and fig. 4).

In the same way all the remaining "definitely subnormal" boys treated with vitamin A were found to be within the normal range at the end of the fortnight, whereas none of those left untreated became normal, although some had shown a somewhat improved reading—i.e., a rise of one grade (= 2 units) —or just enough to convert a reading of "definitely subnormal" into one of "slightly below normal" (table IV) Likewise all the cases originally "slightly below normal" improved with vitamin A, all but one being classed as normal at the end of the period of treatment, whereas those not treated showed little improvement, 4 out of 18 having improved by one grade from "slightly deficient" to poor normal (table V)

---

‡ The small bulb-lamp in the photometer was renewed at short intervals in our tests, to rule out so far as possible errors due to slow dimming with age, it was supplied with a constant E M F of 3–5 volts from a 4-volt accumulator fitted with a rheostat and voltmeter Small fluctuations in the intensity of the lamps used for bleaching and in the photometer are very unlikely to have been sufficient to shift the final classification of a normal into a subnormal group

Control tests on a better fed group—Further tests were carried out a few weeks later on 30 boys of similar age at an institution where the diet was adjudged to be exceptionally good—namely, a home for waifs and strays in Cambridge, where the fare included 1¼ pints of milk daily and fish liver oil during the winter Only the preliminary abstract of this work has so far appeared (Ahmad and Harris 1938), but the results may be conveniently considered here because they form so clear a contrast with the data on the poor class school children selected for the main test The technique was the same as before, except that readings were made at intervals of 5 min *during recovery in the dark, and that the time taken* to complete the first reading after turning out the light was measured with a stopwatch All the boys were examined on at least three successive occasions, and from time to time the 10 min reading was checked by two independent observers Of the 30 boys 28 gave "normal" values—namely, 2 or 4 with the Goldberg wedge at 5 for the 10 min reading on all the three days (Of these 28 classed as normal several gave values above the usual figure of 12 for the first reading after "bleaching" but this was due to its having been taken very rapidly, generally within less than 30 sec As explained above, such a combination is counted as "normal," because for the rough purpose of the present paper a subnormal 10 min reading is taken as the criterion for subnormality) Of the remaining 2 boys 1 was consistently "definitely subnormal" on all three days—namely, readings of 16 8, 14, 6, 14, 6 with the wedge at 5—and 1 was "slightly below normal" on all three days—namely, readings of 10 6, 12, 6, and 8, 6 with the wedge at 5 The 2 boys found subnormal were given vitamin A (halibut liver oil) 12,000 I U daily and retested after three weeks Both were found to have become normal (readings of 8, 2, and 10 4) They were still normal after a further three weeks, administration of vitamin A having in the meantime been suspended

To be concluded

Maternity at Forres Hospital.—Permission has been granted by the Edinburgh Court of Session to the Forres Leanchoil Hospital to admit and treat maternity cases This hospital was opened in 1892 to "provide medical and surgical aid to persons suffering from disease, or the subjects of accident or injury" within a specified area The hospital has 32 beds, an operating theatre, X ray apparatus, and an outpatient clinic. In 1936 it was decided to bring the hospital up to modern standards, and in particular to build a maternity wing This last proposal had local support, and early in the present year an anonymous donor offered to build and equip the maternity wing Under the original constitution the trustees were unable to accept maternity cases, and the court's permission to alter it is very welcome

---

RELIEF OF INTRACTABLE PAIN IN CARCINOMA OF THE CERVIX UTERI

By T F Todd, M S Lond, F R C S, M R C O G

HONORARY ASSISTANT GYNÆCOLOGIST TO THE SALFORD ROYAL HOSPITAL RESEARCH FELLOW AT THE CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE MANCHESTER

Two years ago I pointed out that two distinct types of pain, visceral and somatic, were experienced in advanced carcinoma of the cervix uteri, and that these types could be differentiated clinically (Todd 1937) This is of importance as regards treatment, because two afferent pathways are concerned, and to be effective therapy must be directed to the particular pathway. *I investigated 33 cases 15 of visceral* pain and 18 of somatic The treatment advocated was presacral neurectomy for visceral pain and intrathecal injections of absolute alcohol for somatic. Relief was obtained in all the visceral cases, in the somatic cases relief was obtained in 14 at the first injection and in 3 at the second In other words when the appropriate method was used, the percentage of success was high In the subsequent two years I have continued this research at the Christie Hospital and Holt Radium Institute, Manchester, and a further series of 55 cases have been investigated, bringing the total to 88 I now present my observations on this second series

There are no untoward sequelæ of presacral neurectomy, but the question of possible damage to the affected roots or the adjoining spinal cord by intrathecal injections of alcohol is important Ritchie Russell (1937) pointed out that demyelinisation and posterior-column degeneration developed after injections of alcohol, but that clinical evidence of such changes was as yet absent *Since my previous report* Dr W Susman has reported on two spinal cords removed at autopsy some months after injections of alcohol; he found small areas of degeneration in the posterior columns of one and scars in several nerve-roots of the cauda equina of the other In both spinal cords almost all the vessels showed hyaline degeneration Thus, it is unquestionable that alcohol exerts a deleterious effect on the nerve roots with which it comes in contact and sometimes also on the posterior columns of the cord Several other observers have reported similar changes—e g, Aird and Naffziger (1935), Peyton, Semansky, and Baker (1937) Davis et al (1931) and Sloane (1935) Hence I consider that these injections should be restricted to malignant cases

CLINICAL ASSESSMENT OF THE PAIN

I have continued to investigate the cases along the same lines as described in my previous paper (Todd 1937) A careful history and description of the pain is taken, a neurological examination is made, examination under anæsthesia, cystoscopy, sigmoidoscopy, and exclusion of pyometra are done; and radiography of the lumbosacral spine and pelvis and pyelography complete the investigation Two or three days suffice for this and then an assessment is made of the type of pain and of the nerve path concerned

Objective criteria of the severity of pain are still lacking but more and more I have come to rely on a period of hospitalisation and preliminary observation I have continued to regard pain of sufficient severity to prevent sleep unless sedatives are administered as the most reliable indication of intractability, unless the patient is a victim of insomnia from any other cause. Likewise the relief of pain may be gauged by the patient's ability to do without morphia or other sedatives after treatment and particularly by the occurrence of spontaneous sleep. I know no clinical problem that presents so many difficulties as the assessment of a patient's pain, but, once the patient has been admitted to hospital, an experienced personnel can soon determine whether the pain is severe or not; it is striking how often a patient who has been receiving sedatives, even morphia, will sleep unaided in hospital. A week or even longer may be necessary for deciding whether the pain is minimal and the patient over-reacting to it, but the time is by no means lost, for it allows the patient to realise that the degree of pain has been exaggerated, and that it can become tolerable in the atmosphere and discipline of hospital. I have sent many patients home after full investigation without any treatment, because neither myself nor the nursing staff were convinced that intolerable pain was present. In most of these patients the admission to hospital had a salutary effect, and, without any attempt at serious psychotherapy, reassurance that no disease had been found and the suggestion that the pain would therefore disappear altogether were usually helpful. The craving for sympathy, the subconscious fear of cancer, and the widespread prevalence of addiction to sedatives today all combine to lower the threshold of pain, and I am convinced that it is most important to have a precise objective phenomenon, such as interference with sleep, when attempting to assess and treat patients alleged to have severe pain. I plead for a far more critical attitude here and for the wider use of this criterion in the assessment of pain.

ÆTIOLOGY

As regards visceral pain, no new ætiological factors have been elicited, the commonest cause of pain being ulceration of the rectum, malignant involvement of the base of the bladder, or pyometra. As before either direct local therapy or presacral neurectomy has almost always given relief.

In my previous paper (Todd 1937) I had pointed out that the ætiology of the cases of somatic pain was uncertain, but that there was a widespread idea that the lower-limb pain of advanced malignancy was invariably due to pressure on or invasion of the nerve trunks as they traversed the pelvis I stated then that I had seen no cases with evidence of macroscopic invasion of nerve at autopsy, but in this further series such evidence has been forthcoming in 4 cases, and in 3 further cases bone metastases—again a new phenomenon in my experience—have been demonstrated radiographically. The nerve involvement was demonstrated by exploration in 2 cases and seen to be due to invasion of the (obturator) nerve trunk by malignant growth Therefore the pressure factor so widely assumed to be causal exists at any rate in a proportion of cases. Apart from this, no new light has been thrown on the causation of this type of somatic pain.

VISCERAL PELVIC PAIN

In the past two years I have investigated and treated 27 further cases of intractable visceral pain. Of these cases 8 were treated experimentally with intrathecal injections of alcohol, because the pain was associated with advancing malignancy. The results of this development in technique have been gratifying. Initial relief was obtained in all 8 cases and persisted in 5 of them until death, which occurred a week, a month, three months (2 cases), and five months later. In the 6th case the pain recurred in a few weeks, but further injection was impracticable; in the last 2 cases initial relief has been obtained, but both have been done within the last two months. The alcohol is injected with the patient so positioned that the first and second lumbar roots of both sides are simultaneously affected.

There were 2 cases where relief followed drainage of pyometra. There was 1 case of severe bladder pain due to advancing malignancy through the base of the bladder and 1 due to massive recurrence of rectal malignancy with involvement of the bladder. Relief followed presacral neurectomy in both, but intrathecal alcohol also was needed in the latter case, because there was considerable somatic pain in the distribution of both sciatic nerves Presacral neurectomy relieved 1 further case with severe bladder and rectal pain due to recurrent malignancy. The remaining 14 cases were all associated with rectal ulceration following radiation—the natural history and complications of this condition have been described by me (Todd 1938). In 13 of these cases local measures, which were successful in relieving pain in several less severe cases, were ineffectual, and presacral neurectomy was carried out—5 of the patients were operated on by Mr. H. T. Simmonds, Mr. R L. Holt, or Dr. W. R. Addis, and the remaining 8 by me. The 14th case is still having rectal wash-outs, which give adequate relief. In the 13 cases pain was completely relieved in 12, whereas the remaining 1 was a failure. Since this is the only case of this nature in which pain has not been relieved after presacral neurectomy, and in view of its unique sequel, it is worth recording in detail.

The patient, aged 63, with a stage 3 carcinoma of the cervix, was treated with radium. Six months later necrosis of the rectum developed. She was given a month's trial of local measures, but the necrosis caused such pain that sympathectomy was indicated. This was done, and during convalescence there was some relief of pain, but within two weeks of her discharge from hospital the pain recurred as severely as before. She was readmitted; and, in view of the initial failure and the possibility that an incomplete section had been done on the first occasion, it was considered advisable to do a further laparotomy.

At operation a pulsatile tumour some 5 cm. in diameter was found lying on the aorta immediately above the bifurcation. The triangle between the common iliac arteries was completely cleared, and a left iliac colostomy was made. The patient died three days later from cardiac failure.

At autopsy the pulsatile mass was found to be an aneurysm. Extensive atheromatous changes were present in the aorta, and the previous operation had possibly traumatised the wall. This aneurysm was sufficient to cause her apparent recurrence of rectal pain, in view of the fact that the whole of the visceral sympathetic afferents would have to course over it. I have heard of no comparable case.

My further experiences, therefore, confirm my opinion that for visceral pelvic pain presacral neurectomy is excellent. The first failure in my series developed a complication that could presumably stimulate the central ends of the divided plexus, and even here there was a temporary relief of pain before the development of the aneurysm In cases associated with advancing malignancy an alternative therapy to presacral neurectomy consists in injections of alcohol so administered as to affect the upper lumbar roots, and I think this will replace neurectomy in the malignant cases.

SOMATIC LIMB PAIN

Intrathecal injections of alcohol have been given to 28 further cases of somatic limb pain (table I). There were 3 complete failures

In the first case I could only find the dural space with great difficulty, it was almost a dry tap, and the injection gave *no relief*—possibly because there was an error in technique, or more probably because pain was associated with spinal compression due to metastases

In the second case there was a similar failure in the presence of collapse of the body of the fourth lumbar vertebra and spinal compression This patient died within a month of my attempting treatment, but the first case was in fairly good general health, and my colleague Mr G F Rowbottom successfully carried out a chordotomy, with relief of her pain

The third failure was in a patient with carcinoma of the prostate with metastases in the ilium whom I injected by invitation of Mr Geoffrey Jefferson Severe localised pain over the bone metastases in the distribution of the posterior divisions of first and second sacral nerves was the main symptom, but the patient had had a chordotomy done some months previously and the beneficent result of this had worn off, when I first saw him he was having repeated large doses of morphia On two occasions at a month's interval I injected alcohol intrathecally, and on each occasion the usual subjective phenomena occurred with relief of pain that lasted only two or three days, after which the craving for morphia reasserted itself and violent pain was complained of We felt that this pain was now psychogenic, seeing that the whole of the pain afferent pathway had been interrupted on three separate occasions The fact that relief was always obtained initially and was subsequently followed by a recrudescence suggests that the drug-addiction was responsible for the failure

One other case was a partial success only, she had severe pain in the right groin made worse by micturition There was a right sided hydronephrosis An injection of 0 6 c cm of absolute alcohol between the twelfth dorsal and the first lumbar vertebræ relieved the dysuria but not the groin pain The patient's general condition was so poor, and she was such an appalling witness, that I did not repeat the injection

TABLE I—ROOT VALUE OF SOMATIC LIMB PAIN

Root value	Cases	Root value	Cases	Root value	Cases
L 1, 2	5	L 2 S 2	1	L 5	1
L 1 2, 3	2	L 3 4	3	S 1 2, 3	5
L 2, 3, 4	4	L 4 S 1	2	S 4	3
L 4 5	1	L 4 S 3	1		

An analysis of the remaining 21 cases is given in table II

In this series the only complications were transient retention of urine in 4 cases and fæcal incontinence in 3 Doubtless urinary complications would have arisen in the case of prostatic metastases recorded above, had there not already been an indwelling catheter Backache localised to the site of the injection has been complained of by several patients, but it has not persisted more than twenty four to forty-eight hours In 2 cases there was severe temporary headache. Autopsy has been unobtainable for various reasons; for the most part the patients do not die in hospital, for it is possible to discharge them after the therapy One partial autopsy was obtained, a laminectomy being allowed for the purpose of removing the spinal cord for histological examination

Further experience with intrathecal injection of absolute alcohol thus confirms that it is a valuable agent for the relief of intractable pain Out of 36 cases 31 were given almost complete relief by alcohol and the average duration of relief was three months, despite the fact that more than half the patients died within two months of treatment Two patients are still alive having been treated over two years ago, and the relief has persisted, though in one the pain is beginning to recur

TABLE II—RESULTS OF INTRATHECAL INJECTIONS OF ALCOHOL IN SOMATIC LIMB PAIN

Case	Result	Remarks
1	Relieved	Injected only two months
2	„	Died in two weeks, but complete relief of pain until death
3		*Relief of pain persisted three months*
4	„	Died in two months
5	„	Pain recurred in six months but not severe enough to warrant further injection
6	„	Died in six months Was under hospital observation practically the whole time and had no recurrence of pain
7	„	Died in three *months*
8	„	Still free from pain fifteen months after injection
9	„	Died in two weeks
10	„	*Died in two months*
11	„	Died in 2½ months
12	„	Died in two weeks
13		Died in three months
14	Partial relief	Presacral neurectomy required also for bladder pain. Patient very poor witness and hysterical Discharged herself within a month of treatment and has not been traced
15	Relieved	Relief has persisted three months
16		Died in four months
17	Partial relief	Not traced, but pain had recurred in one month
18	Relieved	Pain recurred in two months Patient died two months later Further injection impracticable for patient was not readmitted to hospital
19		Relief lasted six weeks only Patient died in four months Further injection impracticable
20		Hysterical factor present associated with morphinism
21*	„	Recurrence of pain relieved two weeks later by repeat injection
22*	„	Retention requiring catheterisation for over ten days complicated relief
23*		Retention for six days
24*	„	Partial relief at first injection Repeated in one month successfully

* Cases injected within the last two months

AVOIDANCE OF COMPLICATIONS AND ANALYSIS OF FAILURES

Stern (1937) points out various technical details that help to avoid rectal and bladder complications He also emphasises the fact that pains arising from bone lesions are more difficult to relieve, and he states that drug addicts may continue to complain of pain despite injections of alcohol My experience confirms his One patient, who had been receiving morphia three or four times daily for several weeks stoutly denied that there was any relief from the intrathecal injection, and her outward manifestations of the pain were extremely dramatic However, the substitution of sterile water for morphia was effective in inducing sound sleep on several occasions This effect of morphinism on the psyche is well known and is probably responsible for these failures

The best description of technique and dosage is that of Russell (1936) In my experience bladder and rectal complications have been infrequent and transient I think the most important technical points apart from correct positioning are to inject the alcohol very slowly (taking at least two minutes per 0 5 c cm) and not to inject more than 1 c cm on any one occasion

Both Stern (1937) and Saltzstein (1938) labour the point that an injection of more than 0 5 c cm of alcohol in the upper lumbar region is liable to be followed by distressing bladder, rectum and lower limb paralysis I have often injected 0 5 1 c cm of alcohol at this level without complications The other cause. Likewise the relief of pain may be gauged by the patient's ability to do without morphia or other sedatives after treatment and particularly by the occurrence of spontaneous sleep. I know no clinical problem that presents so many difficulties as the assessment of a patient's pain, but, once the patient has been admitted to hospital, an experienced personnel can soon determine whether the pain is severe or not; it is striking how often a patient who has been receiving sedatives, even morphia, will sleep unaided in hospital. A week or even longer may be necessary for deciding whether the pain is minimal and the patient over-reacting to it; but the time is by no means lost, for it allows the patient to realise that the degree of pain has been exaggerated, and that it can become tolerable in the atmosphere and discipline of hospital. I have sent many patients home after full investigation without any treatment, because neither myself nor the nursing staff were convinced that intolerable pain was present. In most of these patients the admission to hospital had a salutary effect, and, without any attempt at serious psychotherapy, reassurance that no disease had been found and the suggestion that the pain would therefore disappear altogether were usually helpful. The craving for sympathy, the subconscious fear of cancer, and the widespread prevalence of addiction to sedatives today all combine to lower the threshold of pain, and I am convinced that it is most important to have a precise objective phenomenon, such as interference with sleep, when attempting to assess and treat patients alleged to have severe pain. I plead for a far more critical attitude here and for the wider use of this criterion in the assessment of pain.

ÆTIOLOGY

As regards visceral pain, no new ætiological factors have been elicited, the commonest cause of pain being ulceration of the rectum, malignant involvement of the base of the bladder, or pyometra. As before either direct local therapy or presacral neurectomy has almost always given relief.

In my previous paper (Todd 1937) I had pointed out that the ætiology of the cases of somatic pain was uncertain, but that there was a widespread idea that the lower-limb pain of advanced malignancy was invariably due to pressure on or invasion of the nerve trunks as they traversed the pelvis. I stated then that I had seen no cases with evidence of macroscopic invasion of nerve at autopsy, but in this further series such evidence has been forthcoming in 4 cases, and in 3 further cases bone metastases—again a new phenomenon in my experience—have been demonstrated radiographically. The nerve involvement was demonstrated by exploration in 2 cases and seen to be due to invasion of the (obturator) nerve trunk by malignant growth. Therefore the pressure factor so widely assumed to be causal exists at any rate in a proportion of cases. Apart from this, no new light has been thrown on the causation of this type of somatic pain.

VISCERAL PELVIC PAIN

In the past two years I have investigated and treated 27 further cases of intractable visceral pain. Of these cases 8 were treated experimentally with intrathecal injections of alcohol, because the pain was associated with advancing malignancy. The results of this development in technique have been gratifying. Initial relief was obtained in all 8 cases and persisted in 5 of them until death, which occurred a week, a month, three months (2 cases), and five months later. In the 6th case the pain recurred in a few weeks, but further injection was impracticable; in the last 2 cases initial relief has been obtained, but both have been done within the last two months. The alcohol is injected with the patient so positioned that the first and second lumbar roots of both sides are simultaneously affected.

There were 2 cases where relief followed drainage of pyometra. There was 1 case of severe bladder pain due to advancing malignancy through the base of the bladder and 1 due to massive recurrence of rectal malignancy with involvement of the bladder. Relief followed presacral neurectomy in both, but intrathecal alcohol also was needed in the latter case, because there was considerable somatic pain in the distribution of both sciatic nerves. Presacral neurectomy relieved 1 further case with severe bladder and rectal pain due to recurrent malignancy. The remaining 14 cases were all associated with rectal ulceration following radiation—the natural history and complications of this condition have been described by me (Todd 1938). In 13 of these cases local measures, which were successful in relieving pain in several less severe cases, were ineffectual, and presacral neurectomy was carried out—5 of the patients were operated on by Mr. H. T. Simmonds, Mr R. L. Holt, or Dr. W. R. Addis, and the remaining 8 by me. The 14th case is still having rectal wash-outs, which give adequate relief. In the 13 cases pain was completely relieved in 12, whereas the remaining 1 was a failure. Since this is the only case of this nature in which pain has not been relieved after presacral neurectomy, and in view of its unique sequel, it is worth recording in detail.

The patient, aged 63, with a stage 3 carcinoma of the cervix, was treated with radium. Six months later necrosis of the rectum developed. She was given a month's trial of local measures, but the necrosis caused such pain that sympathectomy was indicated. This was done, and during convalescence there was some relief of pain, but within two weeks of her discharge from hospital the pain recurred as severely as before. She was readmitted; and, in view of the initial failure and the possibility that an incomplete section had been done on the first occasion, it was considered advisable to do a further laparotomy.

At operation a pulsatile tumour some 5 cm. in diameter was found lying on the aorta immediately above the bifurcation. The triangle between the common iliac arteries was completely cleared, and a left iliac colostomy was made. The patient died three days later from cardiac failure.

At autopsy the pulsatile mass was found to be an aneurysm. Extensive atheromatous changes were present in the aorta, and the previous operation had possibly traumatised the wall. This aneurysm was sufficient to cause her apparent recurrence of rectal pain, in view of the fact that the whole of the visceral sympathetic afferents would have to course over it. I have heard of no comparable case.

My further experiences, therefore, confirm my opinion that for visceral pelvic pain presacral neurectomy is excellent. The first failure in my series developed a complication that could presumably stimulate the central ends of the divided plexus, and even here there was a temporary relief of pain before the development of the aneurysm. In cases associated with advancing malignancy an alternative therapy to presacral neurectomy consists in injections of alcohol so administered as to affect the upper lumbar roots, and I think this will replace neurectomy in the malignant cases.

SOMATIC LIMB PAIN

Intrathecal injections of alcohol have been given to 28 further cases of somatic limb pain (table I). There were 3 complete failures.

In the first case I could only find the dural space with great difficulty, it was almost a dry tap, and the injection gave no relief—possibly because there was an error in technique, or more probably because pain was associated with spinal compression due to metastases

In the second case there was a similar failure in the presence of collapse of the body of the fourth lumbar vertebra and spinal compression This patient died within a month of my attempting treatment, but the first case was in fairly good general health, and my colleague Mr G F Rowbottom successfully carried out a chordotomy, with relief of her pain

The third failure was in a patient with carcinoma of the prostate with metastases in the ilium whom I injected by invitation of Mr Geoffrey Jefferson Severe localised pain over the bone metastases in the distribution of the posterior divisions of first and second sacral nerves was the main symptom, but the patient had had a chordotomy done some months previously and the beneficent result of this had worn off, when I first saw him he was having repeated large doses of morphia On two occasions at a month's interval I injected alcohol intrathecally, and on each occasion the usual subjective phenomena occurred with relief of pain that lasted only two or three days, after which the craving for morphia reasserted itself and violent pain was complained of *We felt that this pain was now psychogenic*, seeing that the whole of the pain afferent pathway had been interrupted on three separate occasions The fact that relief was always obtained initially and was subsequently followed by a recrudescence suggests that the drug addiction was responsible for the failure

One other case was a partial success only, she had severe pain in the right groin, made worse by micturition There was a right sided hydronephrosis An injection of 0 6 c cm of absolute alcohol between the twelfth dorsal and the first lumbar vertebræ relieved the dysuria but not the groin pain The patient's general condition was so poor, and she was such an appalling witness, that I did not repeat the injection

TABLE I—ROOT VALUE OF SOMATIC LIMB PAIN

Root value	Cases	Root value	Cases	Root value	Cases
L 1, 2	5	L 2, S 2	1	L 5	1
L 1, 2, 3	2	L 3, 4	3	S 1, 2, 3	5
L 2, 3, 4	4	L 4, S 1	2	S 4	3
L 4, 5	1	L 4, S 3	1		

An analysis of the remaining 24 cases is given in table II

In this series the only complications were transient retention of urine in 4 cases and fæcal incontinence in 3 Doubtless urinary complications would have arisen in the case of prostatic metastases recorded above, had there not already been an indwelling catheter Backache localised to the site of the injection has been complained of by several patients but it has not persisted more than twenty four to forty eight hours In 2 cases there was severe temporary headache Autopsy has been unobtainable for various reasons, for the most part the patients do not die in hospital, for it is possible to discharge them after the therapy One partial autopsy was obtained a laminectomy being allowed for the purpose of removing the spinal cord for histological examination

Further experience with intrathecal injection of absolute alcohol thus confirms that it is a valuable agent for the relief of intractable pain Out of 36 cases 31 were given almost complete relief by alcohol and the average duration of relief was three months despite the fact that more than half the patients died within two months of treatment Two patients are still alive, having been treated over two years ago, and the relief has persisted, though in one the pain is beginning to recur

TABLE II—RESULTS OF INTRATHECAL INJECTIONS OF ALCOHOL IN SOMATIC LIMB PAIN

Case	Result	Remarks
1	Relieved	Injected only two months
2	"	Died in two weeks, but complete relief of pain until death
3	"	Relief of pain persisted three months
4		Died in two months
5	"	Pain recurred in six months but not severe enough to warrant further injection
6		Died in six months Was under hospital observation practically the whole time and had no recurrence of pain
7	"	Died in three months
8	"	Still free from pain fifteen months after injection
9		Died in two weeks
10	"	Died in two months
11		Died in 2½ months
12	"	Died in two weeks
13		Died in three months
14	Partial relief	Presacral neurectomy required also for bladder pain Patient very poor witness and hysterical Discharged herself within a month of treatment and has not been traced
15	Relieved	Relief has persisted three months
16	"	Died in four months
17	Partial relief	Not traced but pain had recurred in one month
18	Relieved	Pain recurred in two months Patient died two months later Further injection impracticable, for patient was not readmitted to hospital
19	"	Relief lasted six weeks only Patient died in four months Further injection impracticable
20	"	Hysterical factor present associated with morphinism
21*	"	Recurrence of pain relieved two weeks later by repeat injection
22*		Retention requiring catheterisation for over ten days complicated relief
23*		Retention for six days
24*		Partial relief at first injection Repeated in one month successfully

* Cases injected within the last two months

AVOIDANCE OF COMPLICATIONS AND ANALYSIS OF FAILURES

Stern (1937) points out various technical details that help to avoid rectal and bladder complications He also emphasises the fact that pains arising from bone lesions are more difficult to relieve, and he states that drug addicts may continue to complain of pain despite injections of alcohol My experience confirms his One patient who had been receiving morphia three or four times daily for several weeks, stoutly denied that there was any relief from the intrathecal injection, and her outward manifestations of the pain were extremely dramatic However, the substitution of sterile water for morphia was effective in inducing sound sleep on several occasions This effect of morphinism on the psyche is well known and is probably responsible for these failures

The best description of technique and dosage is that of Russell (1936) In my experience bladder and rectal complications have been infrequent and transient I think the most important technical points apart from correct positioning are to inject the alcohol very slowly (taking at least two minutes per 0 5 c cm) and not to inject more than 1 c cm on any one occasion

Both Stern (1937) and Saltzstein (1938) labour the point that an injection of more than 0 5 c cm of alcohol in the upper lumbar region is liable to be followed by distressing bladder, rectum and lower-limb paralysis I have often injected 0 5–1 c cm of alcohol at this level without complications The only point I particularly observe is the slowness of injection I think barbotage should not be practised, and I do not remove any cerebrospinal fluid before the injection Adson (1937) advocates the initial withdrawal of 3 c.cm. of cerebrospinal fluid, so that the alcohol may flow across the "water" level to reach the dorsal roots, and Russell (1936) also first withdraws a few c.cm. of cerebrospinal fluid.

Failure occurred in one case from an inability to effect a satisfactory tap—this should be very unusual. It is important, though, always to ensure that there is a free flow of fluid before injecting the alcohol. The failure in the case with cord compression is understandable, only a chordotomy is likely to be of avail in such a case

In conclusion it may be stated that relief of intractable pelvic and lower-limb pain associated with advanced malignancy should be achieved satisfactorily in nearly 90 per cent of cases, and by the adoption of an exact and careful technique undesirable complications should be reduced to a minimum Failure to achieve relief probably indicates a technical imperfection or the presence of cord compression, or is due to drug-addiction—the relief being obtained through anatomical interruption of the pain pathways but not being appreciated by the sensorium in its abnormal psychological state

SUMMARY

An investigation has been made of 51 further cases of intractable pain associated with advanced carcinoma of the cervix, 3 cases of rectal carcinoma, and 1 of prostatic carcinoma These, added to the former series (Todd 1937) of 33, bring the total to 88. The criteria of intractability and of relief are stated.

The cases have been subdivided again into two distinct types · visceral pain (42) and somatic pain (46).

Treatment along lines previously advocated has been carried out—namely, presacral neurectomy for visceral pain and intrathecal injections of absolute alcohol for somatic pain Injections of alcohol have also been used in 8 cases of visceral pain complicating advanced malignancy. The results were highly satisfactory in each group; there was 1 complete failure to give relief among the visceral cases and 3 among the somatic cases

Changes in the nerve-roots and spinal cords found at autopsy in 2 cases are recorded, and it is emphasised that injections of alcohol should be given only in the presence of malignant disease

This work has been carried out in connexion with a research fellowship at the Christie Hospital and Holt Radium Institute, Manchester My thanks are due to Dr. Ralston Paterson and to the members of the surgical staff of the hospital, who have collaborated in the treatment of some of the cases, and to the research subcommittee

REFERENCES

Adson, A W (1937) *Minnesota Med* 20, 135
Aird, R B and Naffziger, H C (1935) *West J Surg* 43, 377
Davis, L, Haven, H, Givens J H, and Emmett, J (1931) *J Amer med Ass* 97, 1781
Peyton, W T, Semansky, E J, and Baker, A B (1937) *Amer J Cancer*, 30, 709
Russell, W R (1936) *Lancet*, 1, 595
— (1937) *Edinb med J* 44 5, 78
Saltzstein H C (1936) *New int Clin* 3, 167
Sloane, P (1935) *Arch Neurol Psychiat*, 34, 1120
Stern, E L (1937) *Amer J Surg*, n s 35, 99
Todd, T F (1937) *Lancet*, 2 555
— (1938) *Surg Gynec Obstet* 67, 617

STRANGULATED HERNIA

By J. Basil Hume, M S Lond, F.R C S
SURGEON IN CHARGE OF OUTPATIENTS AND LECTURER IN SURGERY AT ST. BARTHOLOMEW'S HOSPITAL, LONDON

STRANGULATED hernia is the most important of all the types of hernia Although its diagnosis should not prove difficult in most cases, delay in diagnosis and consequently in treatment has caused a case-mortality of 20 per cent in external and 37 per cent. in internal strangulated hernia.

PATHOLOGY

Strangulation is a condition of vascular engorgement brought about by venous occlusion in the mesentery of the bowel, or occasionally, as in Richter's hernia, in the bowel wall. Coincident with this there is a violent sympathetic stimulation In a small minority there is simultaneous arterial and venous occlusion. Owing to the vascular engorgement the bowel first becomes red, and then by stages the colour deepens to dark purple. Finally the loop becomes black and gangrenous, and perforation takes place At the same time an exudation of fluid from the loop collects in the hernial sac or (in internal hernia) in the peritoneal cavity. This fluid is at first clear and straw-coloured, then bloodstained, and finally turbid and odorous. It contains a depressor substance of the histamine type, which has been shown by Knight and Slome to be produced in the muscle of the bowel wall owing to anoxæmia. This depressor substance enters the circulation through the lymphatics of the peritoneum or of the hernial sac. Naturally the amount produced is proportionate to the size of the affected loop, and greater absorption will take place from the peritoneum than from the hernial sac

At the point of strangulation there is simultaneous arterial and venous occlusion in the constriction groove This has two important practical applications. (1) perforation may take place here, after the strangulation has been released, because of necrosis of the tissues, and (2) perforation may take place immediately proximal to the constriction because of the pull of the distended proximal portion of the intestine

Apart from the local conditions, two processes are simultaneously taking place which affect the entire body. (1) changes due to simple obstruction, and (2) changes due to the absorption of the highly toxic depressor substance Fig 1 illustrates how fluid and salt are lost into the dilated proximal bowel and by vomiting The resulting loss of intercellular fluid leads to concentration of the blood, and the loss of salts disturbs the H-ion balance, producing alkalæmia; there is also a rise of non-protein nitrogen and blood-urea and a diminished excretion of urine Fig. 2 shows the route of absorption of the depressor substance, its toxic effects on the liver, kidneys, and body generally, and the fall in blood-pressure, with a consequent rise in the pulse-rate and a fall in its volume It also illustrates how, when the strangulation has been released, there will be much absorption of the depressor substance by the venous route. This not infrequently produces a failure of the circulation some hours after an apparently successful operation.

SYMPTOMS

There are six cardinal signs and symptoms, and these may be divided into two groups, major and minor. The major are pain, vomiting, and inability to pass flatus. The minor are distension, visible peristalsis, and a palpable swelling. The common sequence of events is as follows. The patient may be a child or an adolescent in whom the appearance of the hernia and its strangulation are nearly coincident, or an adult with a long-standing hernia which has become larger as a result of a sudden effort or strain. In both cases there is a sudden onset of pain referred usually to the umbilical region and sometimes to the hernia, and this is associated with shock. There is severe nausea or vomiting. Shortly afterwards there are colicky pains, beginning in paroxysms but with shorter and shorter intervals until only exacerbations of a continuous pain can be distinguished.

Vomiting is at first reflex and then mechanical, and the higher the level of the strangulation the earlier the vomiting. Persistent vomiting is perhaps the most important characteristic of acute intestinal obstruction. The vomit is at first the stomach contents, then bile, and finally intestinal fluid. True fæcal vomiting only occurs with gastrocolic fistula, and it cannot be too strongly emphasised that to wait for the appearances of intestinal vomiting is to wait too long.

The inability to pass flatus may be not absolute at first; an enema will produce a coloured result and a little flatus from below the site of obstruction, but this does not give any relief. A second enema an hour later has practically always a negative result so far as flatus is concerned.

Distension, although it must be present in every case, is not always visible, for the state of muscular tone of the abdominal wall has an important bearing on the apparent degree of distension. With a lax abdominal wall, *since most cases of strangulated* hernia involve the small intestine, the distension would tend to be central. The degree of distension also varies inversely with the amount of vomiting; in high obstruction vomiting is severe with little distension, whereas in low obstruction the reverse is the case. There is no doubt that steadily progressive abdominal distension is an important sign in acute obstruction when it is present, and that it always calls for surgical intervention. However, to wait until it has appeared makes the operation more difficult and runs the almost certain risk that the strangulated loop is no longer viable.

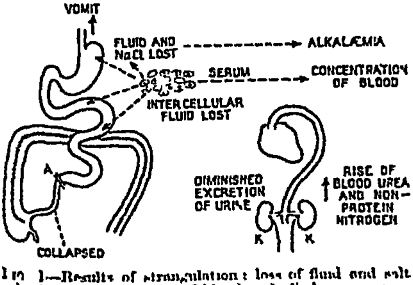


FIG 1—Results of strangulation: loss of fluid and salt leads to concentration of blood and alkalæmia respectively. Blood urea and non-protein nitrogen are increased, and the excretion of urine is diminished.

Visible peristalsis is practically never seen in cases of strangulated hernia unless the abdominal wall is exceedingly thin. It should neither be expected nor waited for.

Palpable swelling can nearly always be found in external strangulated hernia. The danger lies in a Richter's hernia (partial enterocele) strangulated in the femoral canal. The lump may then be so small that it may not be detected. Examination of this region should always be conducted with the hip flexed and abducted, when any small swelling can be more readily palpated.

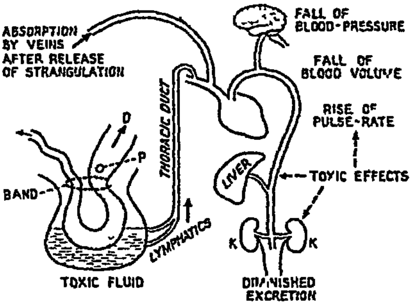


FIG 2—Route of absorption of depressor substance and its toxic effects on organs, with a consequent fall in blood pressure and rise in pulse rate

DIAGNOSIS

If the diagnosis could be made as easily as has been indicated, there would be little reason for a case-mortality of 20–37 per cent, even allowing for the highly toxic character of the bowel exudate. The most important features are the three major symptoms of pain, vomiting and inability to pass flatus in conjunction with the absence of abdominal tenderness or of rigidity or of both. Their absence is a most important point in differential diagnosis, for in other acute abdominal emergencies both of them are present.

There are, however, four problems that must be considered in the differential diagnosis.

(1) Are the symptoms, which we assume to be those of acute intestinal obstruction, caused by the hernia? In other words, is the hernia strangulated or merely irreducible? An irreducible hernia does not cause any abdominal pain other than a dragging sensation. It is soft and not painful on pressure, whereas the strangulated hernia is tense and tender. If the hernia is associated with acute intestinal obstruction from some other cause, it will have an impulse on coughing and probably be partially reducible.

(2) Is the case really one of hernia? The methods of diagnosis of a hernia have already been discussed, but three conditions should be remembered: torsion of an undescended testis, acute hydrocele in an infant, and acute appendicitis in a hernial sac.

Torsion of an undescended testis. The following case is given as an example.

A medical man aged 27 had had a small right inguinal hernia for years but it had only occasionally become complete. He was seized after breakfast with a violent pain in the centre of the abdomen associated with shock and vomiting. In the right inguinal region was a tense and tender swelling, but the emptiness of the right side of the scrotum, the cessation of the vomiting, and the passage of flatus made the diagnosis clear.

Acute hydrocele in an infant.—[illegible] in either general or [illegible] practice [illegible] having been called [illegible] infant, who is having colicky abdominal pains and in whom a scrotal swelling has appeared. You are able to "get above" the hydrocele, and the child, although in pain and possibly vomiting, can pass fæces and flatus naturally

Acute appendicitis in a hernial sac—In this case there will be pain and tenderness over the lump, but the symptoms will be those of appendicitis and not of acute intestinal obstruction

(3) May we be dealing with two conditions—namely, strangulated hernia and acute peritonitis from some other cause?

A colleague removed a gangrenous non-perforated appendix from a lady, the abdomen being closed without drainage. Four days later, influenza having overtaken my friend, I saw the patient, in whom the doctor in charge had diagnosed paralytic ileus, for she had pain, was vomiting, and had not passed flatus The pain appeared to me to be more than I should have expected with that condition, and vomiting was frequent.

Careful examination revealed a small left femoral hernia, which was tense and tender, and on auscultation of the abdomen increased intestinal sounds were heard. The latter alone would exclude ileus, the only alternative diagnosis being a mechanical obstruction by kinking or adhesions The tense and tender nature of the hernia showed that it was strangulated.

The following case also illustrates how a loop of bowel can be forced into a hernial sac and become strangulated when associated with the increase of intra-abdominal pressure that accompanies acute distension of the intestine

A woman, aged 70, was admitted with a typical attack of acute cholecystitis, and a large and tender gall-bladder could be palpated. The patient began to vomit twenty-four hours later, and on examination a tense and tender swelling was found in the groin. Two enemas produced no result, and a correct diagnosis was made.

(4) Is it a strangulated partial enterocele? In a true partial enterocele (Richter's hernia) and in herniation of Meckel's diverticulum (Littré's hernia) the lumen of the bowel is not obstructed, unless in Richter's hernia more than half the circumference is involved, when the bowel becomes kinked In all other instances fæces and flatus would be passed. The initial pain may be severe, but colic is commonly mild, and vomiting is neither severe nor persistent, especially since the terminal ileum is nearly always the site in either. The patient often does not consider the symptoms sufficiently severe to seek advice until the really grave event of perforation of the line of constriction into the peritoneal cavity. These herniæ are small and nearly always femoral, hence they may be overlooked

In all cases, unless the diagnosis can be made at a fairly early stage the patient may be doomed. He will succumb to the toxæmia of the strangulation or to peritonitis resulting from perforation. The use of morphia is as dangerous in strangulation as in other acute abdominal emergencies and is more useless. Atropine is more effective than any other drug in relieving the severity of colic

SUMMARY

1 The reported case-fatality rate of 20–37 per cent in strangulated hernia is mainly due to delay in diagnosis

2 Changes take place due to fluid loss from simple obstruction and to the absorption of a highly toxic depressor substance

3. The major symptoms are pain, vomiting; and inability to pass flatus; the minor ones distention, visible peristalsis and a palpable swelling.

4. In differential diagnosis we must consider the possibility of torsion of an undescended testicle, acute hydrocele in an infant, and acute appendicitis in a hernial sac.

M. & B. 693 IN THE SALIVA

By B. W. Fickling, F.R C S, L D S
ASSISTANT DENTAL SURGEON AT ST GEORGE'S HOSPITAL AN
THE ROYAL DENTAL HOSPITAL, LONDON

Paul Pincus, D D.Sc. Melb., Ph.D. Lond
ASSISTANT TO THE PATHOLOGIST AT THE HOSPITAL; AND

Brian Boyd-Cooper, L D S. Eng.
DEMONSTRATOR AT THE HOSPITAL

(*From the John Hampton Hale Research Laboratory, Royal Dental Hospital, London*)

The salivary excretion of sulphanilamide given by intravenous injection has been observed in dogs (Marshall, Emerson, and Cutting, 1937); the concentrations in the blood and in the saliva varied with different animals receiving the same dose per unit of body-weight This variation in the concentration in the blood of different human patients receiving equal doses per pound of body-weight has been observed by Stewart, Rourke, and Allen (1938), who further state that in man almost all the sulphanilamide is excreted in the urine in either the free or the acetylated form

The excretion of M & B. 693 in the saliva of man does not seem to have been examined.

TABLE I—CONCENTRATION OF M & B 693 IN SALIVA DURING THERAPY WITH THE DRUG

Case No	Interval between last dose and test	Total dosage	Dosage at time of test (T = tab)	Concentration of free M & B. 693 in saliva (mg per 100 c cm)
1	2 hours	10 g in 3 days	T. 2 t d s	3
2	6 "	10 g. in 3 days	T 2 q d s	8
3	2 "	6 g in 2 days	T. 1 4-hrly.	9 5
4	2 "	12 7 g in 9 days	T 2 t d s	6 5
5	2 "	9 g in 3 days	T. 2 t d s	3 5
6	2 "	23 g in 5 days	T. 2 q d s	3
7	2 "	14 5 g in 7 days	T. 1 b d	Nil
8	1 hour	14 g in 6 days	T 2 t d s	26 5
9	2 hours	16 5 g in 8 days	0 5 g q d s	5
10	2 "	9 g in 4 days	T. 1 q d s	6
11	12 "	4 g. in 24 hrs	T. 2 t d s	Nil
12	12 "	19 g in 6 days	T. 2 t d s	4
13	2 "	9 g in 15 hrs	T. 3 3-hrly.	7 5
14	2 "	15 g. in 6 days	T 1 t d s	2 5
15	1 hour	3 5 g in 12 hrs	T 1 4-hrly.	0 9
16	2 hours	5 c cm by injection	1 g.	Nil
17	22 "	12 g. in 60 hrs	T. 2 t.d s.	Nil
18A	..	3 g. by intramuscular injection in 30 hrs	1 g M & B 693 soluble b d.	3
	½ hour			1 5
18B	½ "	18 g. in 9 days	1 g. M & B 693 soluble b d. intravenously	0 8
	1 "			Nil } trace
	2 hours			Nil } only

REMARKS

Case 5—Stated he chewed all the tablets

Case 7—Very low dosage.

Case 8—Simultaneous blood M & B 693 = 7 5 mg. per 100 c.cm. Saliva taken too soon after ingestion

Case 9—M & B 693 given in mixture with sodium bicarbonate and bismuth carbonate

Case 11—? Patient not saturated by short dosage

Case 15—Stated he swallowed the tablets whole

Case 16—? Patient not saturated by short dosage. Compare experiment 2.

Case 17.—Simultaneous blood M. & B 693 = 9 mg per 100 c cm.

Case 18A—Blood M & B 693 after 2 g. = 3 mg. per 100 c cm

Case 18B—Blood M. & B 693 1 hour after injection = 4 4 mg per 100 c cm.

PRESENT INVESTIGATION

In a number of patients receiving M & B 693 the amount present in the saliva was estimated (table I) and experiments were made to determine whether mechanical lodgment of fragments of the drug in the mouth could influence the results

Experiment 1 —Samples of saliva and urine were examined to determine the presence of any substance capable of influencing the results No such substance was found Two normal young adults with healthy mouths (A B and C D) were then each given two tablets (1 g) of M & B 693 A B merely rolled the tablets round the mouth for two minutes without chewing or swallowing, and then voided the contents of the mouth C D chewed the tablets for two minutes, again without swallowing and voided the contents The mouth was then twice rinsed out with water During the experiment no saliva was swallowed, but samples of saliva and urine were collected each hour and tested for the presence of free M & B 693 The results are shown in table II

TABLE II—CONCENTRATION OF M & B 693 IN SALIVA AND URINE (EXPERIMENT 1)

		Free M & B 693 (mg per 100 c cm)				
		Start	½ hr	1 hr	2 hrs	3 hrs
A B (tablets not chewed)	Saliva	0	20	0	0	0
	Urine	0	0	0	0	0
C D (tablets chewed)	Saliva	0		12	0	0
	Urine	0		0	0	1

Experiment 2 —The urine and saliva of C D and F F were examined before the start as before, each then swallowed two whole tablets of M & B 693 without chewing or rolling them about the mouth, in each case this was immediately followed by rinsing out thoroughly twice During the first half hour saliva was collected and examined for free M & B 693 to exclude the possibility of any fragments lodging in the mouth Hourly specimens of saliva and urine were examined as previously The results are shown in table III

TABLE III—CONCENTRATION OF M & B 693 IN SALIVA AND URINE (EXPERIMENT 2)

		Free M & B 693 (mg per 100 c cm)				
		Start	½ hr	1 hr	2 hrs	3 hrs
E. F	Saliva	0	0	1	0·5	0·8
	Urine	0		10	43	73
C. D	Saliva	0	0	0·7	0·7	0·6
	Urine	0		4·7	27	57

COMMENTS ON RESULTS

In case 18 (table I) M & B 693 was found in the saliva although administration was solely by injection Table III shows that M & B 693 appeared in the saliva and in the urine within an hour of ingestion, Baines and Wien (1939) noted it in the urine within sixty minutes

The results seem to show that, if the tablets are swallowed normally, the amount of the drug remaining in the mouth after an hour is negligible and that after continued administration of a dose of 3 g daily the concentration of M & B 693 in the saliva approximates to 3–6 mg per 100 c cm McMartin et al have stated that most ambulatory patients cannot tolerate more than 1·5–2·5 g daily, on which dosage the salivary concentration is very low Further experiments have shown us that a concentration of 20–40 mg per 100 c.cm can be maintained for twelve to twenty four hours by local application, and work along these lines was in progress when war broke out

This investigation was instituted to provide evidence as to the value of sulphonamide drugs in dental lesions as successful results have been claimed in the treatment of Ludwig's angina submaxillary abscess and pyorrhœa Okell and Elliott (1935) and Round, Kirkpatrick and Hails (1936) have shown that streptococci may be carried from unhealthy gums direct to the blood stream, and here the use of M & B 693 may offer some advantages Pyorrhœa, however, is typically associated with pockets in the gums around the teeth, and it would appear difficult if not impossible to effect a clinical cure while these pockets remain

SUMMARY

M & B 693 has been found present in the saliva of patients receiving therapeutic doses The view that this is not merely a mechanical lodging of particles is supported by some experiments

Our thanks are due to the authorities of St George's Hospital for their coöperation in the collection of samples of saliva and for their permission to publish this series of cases, to Mr J A Gardner, Dr R M. Murray Dr Margaret Murray and Mr F. J Haydon for advice and assistance in connexion with the colorimetric estimations, and to Messrs May and Baker Ltd for a supply of M & B 693 The work was carried out during the tenure of grants from the Medical Research Council to one of us (P P.)

REFERENCES

Baines E J and Wien, R (1939) *Quart J Pharm Pharmacol* 12 1
McMartin C Schmitz W H, and McMartin W J (1938) *J Urol* 40, 233
Marshall E K jun, Emerson K, jun, and Cutting W C (1937) *J Pharmacol* 61, 196
Okell C C and Elliott S D (1935) *Lancet* 2 869
Round, H Kirkpatrick H J R, and Hails C G (1936) *Proc Roy Soc Med* 29 1552
Stewart J D, Rourke G M and Allen, J G (1938) *J Amer med Ass* 110, 1885

PERFORATED PEPTIC ULCER

AN ANALYSIS OF 100 CONSECUTIVE CASES

By A H SANGSTER M D Dalhousie, F R C S
ST JAMES L.C.C HOSPITAL, LONDON

BECAUSE of the large number of emergency operations performed in St James Hospital it was felt that a critical review of the last 100 perforated peptic ulcers operated on might be of value This should be the more interesting because one of two similar operative techniques was used, apart from one patient who had a gastrojejunostomy besides closure of perforations

CLINICAL FEATURES

The last 100 perforations were operated on between Sept 10, 1935, and March 3 1939 — just under three and a half years The symptoms commonly attributed to acute perforation of a peptic ulcer have been fully confirmed Sudden onset of acute pain, often causing collapse of the patient wherever he may be is certainly the outstanding feature In only 1 patient a woman of 21, was severe pain [illegible] free all signs and symptoms were localised to the right iliac fossa. The pain is described as "sharp"; any other type of pain is rare

A history of indigestion is of value in diagnosis, but its absence is of little significance, for the patient is in too much agony of mind and body to think clearly. Direct questioning in this series revealed no history of indigestion in 4 cases and a history of less than six months in 7 others. The typical facies, so well described by Lord Moynihan, is almost always present The absolute immobility of the patient is remarkable even to an untrained observer and is an important point in the diagnosis. Rigidity is absolute in the great majority of patients; in only 3 of this series was "board-like" rigidity absent This rigidity does not pass off, no matter at what stage of perforation the patient is seen, until it gives place to the "rigidity with distension" of septic peritonitis.

We still see patients who have been given morphia before admission to hospital. It cannot be too strongly emphasised that this drug should only be given when the operating surgeon has satisfied himself of the diagnosis. The masking of signs and symptoms may mislead the surgeon and cause dangerous delay

TREATMENT

Treatment in this hospital is by immediate operation. If salines are considered necessary, an intravenous injection is given during and after the operation, but operation is not allowed to be delayed so that fluid can be introduced before the anæsthetic is begun.

Either Omnopon or morphine and atropine is in general use as premedication The anæsthetist is a very important member of the surgical team, for he can ensure such relaxation that easy and quick approach to the perforation and its repair can be carried out with a minimum of handling. When the anæsthetic is given by a less competent man more handling, more soiling, and heavier retraction are necessary Intratracheal nitrous oxide, oxygen, and ether is an excellent anæsthetic A high spinal has been used successfully in several cases. Both of these methods need a high degree of skill, however, and a sufficiently expert anæsthetist is not always available, in which event open ether with a local infiltration of the recti muscles is safe and efficient.

The exposure is either by a midline or a paramedian incision When the peritoneum is opened gas escapes and the stomach is seen to be distended. Palpation of stomach and duodenum reveals the induration surrounding the site of perforation By lifting part of the stomach from the incision, the surgeon can bring the ulcer into view Two stitches are inserted through the muscular coats of the organ well away from the perforation and on opposite sides of it These are tied, the ends being left long. When these two stitches are lifted, the ulcer can be made to sink into a trough, the two sides of which can be held in approximation by two or more interrupted stitches. An omental graft is then laid over the suture line and held in place by knotting the two stray sutures over it

The other technique used eliminates all stitches except the two stay sutures, the omentum being placed over the perforation.

Drainage has been used in 24 patients in this series; these had gross contamination of the peritoneal cavity A localised abscess was formed in 3 cases; 2 of these had a drainage-tube inserted at the time of operation

CASE-MORTALITY

The total of deaths in this series was 23 A few of these cannot be solely attributed to the perforation, some of the causes of death being as follows —

(1) Lobar pneumonia; died forty-eight days after operation.

(2) Massive hæmatatemesis; died immediately after hæmatemesis thirteen days after operation.

(3) Severe burns; admitted with severe burns of back and buttocks of some days' duration, and died as these were sloughing thirteen days after operation.

(4) Senile dementia, the patient pulled the stitches out and was resutured, but slowly sank and died twenty-nine days after operation.

(5) Pneumonia: admitted with a respiration-rate of 44.

The proportion of gastric to duodenal ulcers was 47 to 53, and 29 per cent of patients with perforated gastric ulcer died in contrast with only 16 per cent with perforated duodenal ulcer. There were 1 women, 5 with gastric and 5 with duodenal ulcers, 2 of those with gastric ulcer died, but only 1 with duodenal ulcer. In 1 patient there was a perforated duodenal ulcer in the presence of a well-functioning gastro-enterostomy performed sixteen years before. Double perforations were present in 2 patients: in one case a second perforation, which had not been recognised at operation, caused a fatal duodenal fistula and was discovered at autopsy; in the other case both perforations were closed and a gastro-jejunostomy was performed, with subsequent recovery. Some investigators have found the highest incidence of perforation in the summer months. This has not been our experience, 45 cases occurred between December and March

The total mortality seems high; but, when examined with reference to the time between perforation and operation (see table) the results conform with those of most observers

CASE-MORTALITY IN RELATION TO TIME OF OPERATION.

Hours before operation	Cases	Deaths	Mortality (per cent)
1–10	77	15	19 5
10–20	15	5	33 3
20–30	3	0	0
Over 30	5	4	80 0

Of the patients operated on more than thirty hours after perforation, 1, at thirty-one hours, died, 1, at thirty-two hours, died, 1, at fifty-eight hours, recovered; 1, at seventy hours, died, and 1 a eighty-two hours, died.

The average age of our patients was 51, the youngest 21, and the oldest 77.

Many patients had other pathological lesions, notably bad teeth The size of some ulcers and the massive amount of induration, of almost cartilaginous hardness, surrounding them were definite indications that operation was long overdue

Perforation is only one complication of peptic ulcer When we contemplate the misery of these patients, and consider the other complications with high morbidity and mortality we feel that surgery must be contemplated earlier in peptic ulcer than it is at present if we are to lower its killing power

SUMMARY

A series of 100 consecutive perforated peptic ulcers is reviewed.

Of these, 23 died, at least 5 deaths being not directly due to the perforation

The series confirms the commonly reported symptoms and signs, especially the sudden onset and the sharpness of the pain

Morphine should not be given before the operating surgeon has made his diagnosis

The anæsthetic of choice is intratracheal nitrous oxide and ether, and a skilled anæsthetist can much reduce the risks and lighten the surgeon's task

Early operation is essential in perforation but patients with peptic ulcer should be operated on before perforation takes place

I wish to thank the medical officer of health to the London County Council and the medical superintendent of St James' Hospital for permission to publish this article

AN EPIDEMIC OF APPARENT INFLUENZA

By A E MARTIN, M D [illegible] D P H
WHITWORTH OBSERVER AND SIR [illegible] RESEARCH FELLOW IN THE UNIVERSITY OF [illegible]
AND
R. W FAIRBROTHER, D Sc M [illegible] M R C P
DIRECTOR OF THE CLINICAL LABORATORIES [illegible] THE MANCHESTER ROYAL INFIRMARY

(From the Department of Bacteriology and Preventive Medicine in the University of Manchester)

The last extensive outbreak of epidemic influenza occurred in the Manchester district during the winter of 1936–37, and the influenza virus was isolated from several cases (Hoyle and Fairbrother 1937a) Since then until January, 1939, the condition has been quiescent, sporadic cases only having been reported In January, 1939, the number of cases considered clinically as "influenza" began to show a sudden increase, and the outbreak rapidly assumed the features of a mild but widespread epidemic The symptoms became more uniform than those exhibited by sporadic cases seen during the non epidemic period of 1937–38, and the clinical picture showed many points of similarity with that generally found in epidemic influenza of virus origin

During January and February 70 cases were investigated from the following sources, which were mainly in the Manchester district :—

	Cases
Students who had been under observation for some months for infections of the upper respiratory tract	10
From a ward of a mental hospital	13
From the nursing staff of a hospital	14
From a mental hospital	12
From an institutional school near Blackpool	8
From the staff of a fever hospital	2
From miscellaneous sources	11

EPIDEMIOLOGY

The outbreak first appeared in the district at the end of December, 1938, and persisted until March, 1939, it was also widespread throughout the country In the Manchester district the maximal incidence was in the middle of February, and few cases were reported after the end of that month A detailed statistical survey was not made, but several striking features provided a comparison with previous outbreaks of true epidemic influenza The 1939 epidemic was relatively prolonged, cases, though widespread were mild and complications in particular influenzal pneumonia, were few In comparison the 1937 Manchester epidemic a typical outbreak caused by the influenza virus had a relatively explosive onset and was more extensive and more severe, and complications were commoner

The 14 cases among the nursing staff of a hospital occurred among a staff of 180 of whom 21 were affected, but there was no rapid "peaking," and the outbreak persisted for some time On the other hand, the 13 cases from a ward of a mental hospital were from an outbreak which attacked an isolated wing of the hospital, rapidly attained its maximal incidence and as rapidly died down again Altogether some 30 patients were affected, of whom 2 died This localised outbreak possessed those explosive features which are at present associated with the participation of the influenza virus in the outbreak

CLINICAL ASPECTS

A great similarity exists between the symptoms of different cases of typical influenza during established influenza virus epidemics (Stuart Harris 1937), atypical cases in such epidemics are rarer than would be expected On the other hand, when the main symptoms of a non virus epidemic are considered, although some cases of febrile catarrh may closely resemble the virus disease, there are well defined differences The important features which Stuart Harris emphasises are the sudden onset and short explosive nature of true epidemic influenza and the predominance of the constitutional symptoms over the respiratory and nasopharyngeal There is usually a slight posterior pharyngitis but the inflammation in the upper respiratory tract is not so severe as would be expected if it were responsible for the general disturbance By contrast, non virus "influenza" or "febrile catarrh" has a more gradual onset, and the local inflammation in the upper respiratory tract is usually sufficient to cause the constitutional disturbance Smorodintseff and his co workers (1937) who infected human volunteers with the virus have also shown that the virus disease produces a fairly typical symptom complex in which the constitutional disturbance predominates Local symptoms however, were in many cases also pronounced, including hyperæmia of the nasal mucosa with œdema of the turbinates (40 per cent of cases) followed by various degrees of nasal discharge, and hyperæmia of the fauces with swelling of the tonsils (28 per cent of cases)

Andrewes (1939) has pointed out that in some epidemics cases closely resemble the virus disease, yet attempts to isolate the virus have been unsuccessful This was true of the epidemic of January and February, 1939 Andrewes emphasises that it is not yet possible to diagnose true virus influenza on clinical grounds alone

The symptoms of the cases as a whole seen in the epidemic under investigation were more uniform than those of sporadic cases in non epidemic times, and when the cases in any one localised outbreak were considered, the uniformity of the symptoms was even more accentuated Thus laryngitis and hoarseness were distinctly more apparent during the epidemic than in sporadic cases investigated immediately before the epidemic and the incidence of these two symptoms was particularly high in cases in institutions in the immediate vicinity of Manchester On the other hand in an institution in the Fylde district these symptoms were less evident and the amount of gastro intestinal disturbance associated with the illness was increased

The symptoms of 70 cases from the epidemic are summarised in table I and compared with cases from the non epidemic period of 1937–38 and with cases of true epidemic influenza quoted from Stuart-Harris (1937). In the 1939 epidemic the percentages of cases with sudden onset was slightly higher than in the non epidemic group In general the table indicates that the symptoms of the 1939 epidemic lie midway between those of sporadic cases in non-epidemic times and those of true epidemic influenza

TABLE I—SYMPTOMS OF THE 1937 AND 1939 EPIDEMICS AND OF SPORADIC CASES IN A NON-EPIDEMIC PERIOD

Symptoms	Sporadic cases (54) in a non-epidemic period	1939 epidemic (70 cases)	1937 epidemic (true epidemic influenza)*
	(per cent)		
Premonitory symptoms	30	20	13
Sudden onset	61	74	75
Symptoms at onset			
Headache	67	66	54
Muscular and arthritic pains	41	19	(21)
Nasal coryza	39	35	15
Cough	48	35	20
Sore-throat	67	17	11
Nausea	13	15	—
Vomiting	4	0	6
Symptoms during the course of the illness			
Headache	80	90	87
Muscular and arthritic pains	67	79	(51)
Nasal coryza	63	56	73
Cough	80	87	71
Sore-throat	78	77	43
Nausea	26	21	21
Vomiting	15	13	11
Laryngitis	15	40	—
Malaise	31	41	91

* Quoted from Stuart-Harris (1937).

SEROLOGICAL INVESTIGATIONS

In view of the work of Magill and Francis (1938) and of Smith and Andrewes (1938) indicating antigenic differences in strains of influenza virus on the basis of the neutralisation test, it was considered preferable to rely mainly on the complement-fixation test as described by Hoyle and Fairbrother (1937b) for this investigation. By this test only one common complement-fixing antigen was demonstrated in all the strains of influenza virus which they investigated It has been shown that this test is specific for the influenza virus, and that the complement-fixing titre of serum generally rises appreciably as a result of infection with the virus

Sera from 22 cases were tested both before or during the early stages of the attack and later during convalescence. In each case no rise in the complement-fixing titre was detected. In a further 45 cases convalescent sera alone were examined. The titres of the sera of both convalescent groups are shown in table II for comparison with the distribution of titres in a group of apparently normal adults. It is seen that the titres of the sera of the convalescent groups are not raised above the normal level. A similar distribution in titre was found in sporadic cases of influenza during the non-epidemic period 1937–39 In contrast the titres of a group of patients convalescent from the 1937 influenza epidemic were quite different (Hoyle and Fairbrother 1937a) In the first three groups the highest titre was 1 : 16, and some 85 per cent of sera had a titre of 1 : 4 or less. For the sera from convalescent patients, after an epidemic which yielded influenza virus the highest titre was 1 : 128, and 88 per cent. had a titre higher than 1 : 4

Sera of 15 of the patients convalescent from the 1939 epidemic were also tested by neutralisation against the W S strain of influenza virus by the standard method in mice The distribution of titres was within the normal range which would be expected in healthy adults, and no titres were found comparable to those in convalescent patients after infection by the virus. It may therefore be concluded that no serological evidence was found that the 1939 epidemic of "influenza" was caused by the influenza virus

ATTEMPTS TO ISOLATE THE INFLUENZA VIRUS

In 14 typical cases at the height of the 1939 epidemic attempts were made to isolate the influenza virus. Nasopharyngeal washings in saline-broth were taken from patients during the first twenty-four hours of the attack and were dealt with in most cases within one or two hours after collection Bacteriological cultures were made in each instance, but evidence to incriminate any particular organism was never obtained. Ferrets and mice were used for inoculation

In ferrets.—In 5 of the 14 cases the ferrets had a slight elevation of temperature forty-eight to seventy-two hours after infection and were lethargic, with frequent yawning, sneezing, and shivering Post-mortem examination of 3 of these animals during this period showed that the nasal mucosa was injected, and that there were patches of bronchopneumonia in the lungs In 1 ferret this was definitely due to bacterial infection, but in the 2 others no bacteria could be isolated from the pneumonic patches The condition in 1 of these animals was successfully passed on to a second ferret by intranasal instillations of suspensions of the pneumonic patches, but it died out when an attempt was made to transfer it to a third. In the other case the condition died out during the second ferret passage. The 2 remaining ferrets which developed a febrile reaction were not killed but were each placed in intimate contact with normal ferrets in the hope that the disease would be conveyed by direct contact. This did not happen Their sera were later tested by neutralisation against the W S. virus with negative results.

These conditions in ferrets were not typical of infection by the influenza virus; the temperatures were not so high, and the lung lesions were often far more extensive. Finally, when the sera of the convalescent patients from whom these nasopharyngeal washings had been taken were later tested by complement-fixation, the titres were found to be low.

TABLE II—TITRES OF VARIOUS GROUPS TESTED BY THE COMPLEMENT-FIXATION TEST

Titre	Convalescent. patients in the 1939 epidemic	Apparently normal adults	Patients convalescent from sporadic influenza in 1937–39	Convalescent patients in the 1937 epidemic*
1 in 128	0	0	0	9
1 „ 64	0	0	0	13
1 „ 32	0	0	0	14
1 „ 16	3	3	1	10
1 „ 8	8	9	7	11
1 „ 4	19	14	13	8
1 „ 2	21	16	14	0
Doubtful (1 in 2)	5	14	8	0
Negative (1 in 2)	11	12	11	0
Total	67	68	54	65

* Quoted from Hoyle and Fairbrother 1937.

In mice.—In 12 of the cases attempts were made to isolate virus from the nasopharyngeal washings direct from man to mice by intranasal inoculation under anæsthesia In each case, although there were originally no visible lesions, three or four serial passages of lung material were performed In 3 instances consolidation of the lungs was produced, but these were later shown to be due to bacterial infection Suspensions were made from all lesions obtained by post-mortem examination of infected ferrets and were administered to mice, but no lesions were produced in these animals.

DISCUSSION

The evidence for concluding that the epidemic of clinical influenza which occurred in and about Manchester early in 1939 was not caused by the influenza virus is reasonably convincing. The virus was not isolated from typical cases by a technique which had succeeded on other occasions and there was no increase in antibody titre in the sera of convalescent patients tested by complement fixation.

In association with these facts, consideration should be given to the clinical aspects of the epidemic. The symptoms were, on the whole, uniform and simulated those of epidemics caused by the influenza virus. This tendency to uniformity suggests that probably one ætiological agent was responsible. It was noted particularly that cases in a localised outbreak, such as in an institution, were alike clinically. It seems evident that a group of cases such as those from a ward of a mental hospital, which closely resembled in clinical features infection due to the influenza virus and occurred in a sudden explosive outbreak must have been caused by a single ætiological agent. It seems equally clear that this agent was not the influenza virus, nor could a bacterial cause be demonstrated. The probability thus appears to be that the 1939 epidemic in this area was caused by a virus which has not yet been isolated. The reactions obtained in some of the ferrets inoculated with material from such cases lends support to this view.

It may be very difficult clinically to differentiate cases of infection with the influenza virus from those caused by some other agent. Moreover, the high contagiousness and rapid spread of infection—even in a localised group—cannot be taken as a sure indication of the participation of the influenza virus in the outbreak.

During the 1939 epidemic localised groups of cases were met which differed somewhat from the predominating clinical picture, such as the 8 cases from a school near Blackpool, in which gastro-intestinal disturbance was unusually prominent. The bacteriology of the stools from these cases was not investigated, and it is possible that such disturbances might have been associated with a bacterial infection secondary to the epidemic disease.

The investigation of this epidemic clearly establishes the necessity to search further for viruses other than the influenza virus which may be responsible for infections of the upper respiratory tract that occur in epidemic form and simulate clinical influenza.

SUMMARY

Cases of apparent influenza occurring during a mild epidemic in January and February, 1939, have been investigated. Although in certain respects the outbreak clinically resembled epidemic influenza evidence could not be obtained that the cases were due to the influenza virus. The ætiological agent was not determined.

We wish to thank the many people who kindly helped in the collection of specimens from patients.

REFERENCES

Andrewes, C H (1939) *Lancet*, 1, 589
Hoyle L, and Fairbrother, R. W (1937a) *Brit. Med J* 1, 655
— — (1937b) *J Hyg Camb* 37, 512
Magill T P, and Francis, T (1938) *Brit J exp Path* 19, 273
Smith W and Andrewes (1938) *Ibid*, p 293
Smorodintseff, A A, et al (1937) *Amer J med Sci* 194 159.
Stuart Harris, C H (1937) *Brit med J* 2, 516
— Andrewes Smith et al (1938) *Spec Rep Ser med Res Coun Lond* No 228

CLINICAL NOTES

TWO CASES OF PSITTACOSIS

By W G A SWAN, M D Durh, M R C P
MEDICAL REGISTRAR OF THE GENERAL HOSPITAL, NEWCASTLE-ON-TYNE, AND

E F DAWSON WALKER M D Durh, D P H
MEDICAL SUPERINTENDENT OF THE CITY HOSPITAL FOR INFECTIOUS DISEASES NEWCASTLE-ON-TYNE

PSITTACOSIS can be contracted from contact with birds other than parrots. Meyer and Eddie (1934) found a fatal case of psittacosis among 200 freshly trapped Australian budgerigars and later they demonstrated the virus in 8 out of 60 apparently healthy birds in the batch. Meyer, Eddie and Stevens (1935) gave a list of birds which had been found to be susceptible to psittacosis by placing them in the same pens as infected parakeets. This list includes the parrotlet, conure, and cockateel (Psittaciformes). Birds other than psittacines were also found to be susceptible, such as the canary and more especially the Java sparrow (order Passeriformes, family Ploceidæ). Of the Java sparrow they said, "They may serve as sentinels for the detection of the presence and dissemination of the virus in a room or pen in which parakeets with latent psittacosis are held." They also report 2 cases of psittacosis in human beings due to contact with canaries. Haagen and Maurer (1938) found the virus in exotic finches and in native German coaltits and siskins. In the Faroe Islands an epidemic of psittacosis was traced to fulmar petrels (*Lancet* 1930).

The following 2 non-fatal cases of psittacosis in human beings occurred last year in Newcastle-on-Tyne. The source of infection was apparently budgerigars, which in one case seemed to be healthy.

CASE RECORDS

CASE 1.—A crane slinger, aged 37, was admitted to Newcastle General Hospital on April 19, 1938. Ten days before admission, while at work, he began to shiver and felt a pain in his back. He went straight to bed. From the onset of the illness his breathing had been difficult, but there was only slight cough and little sputum. His throat was sore for the first few days. The backache persisted for a week but had disappeared on admission. The bowels were constipated. His previous health had been very good.

The patient was a bird fancier and kept cage birds in his back yard. He bred canaries and had about six in good condition. He had bought four budgerigars from a dealer in February, 1938, and had sold them on April 15, four days before admission. He said the budgerigars appeared to be healthy. He himself looked after the birds, and his wife and his son were not ill.

On admission.—Temperature 101° F., pulse-rate 101, and respiration rate 24. No rash. He was a stout man of good physique and was in little distress. Mouth, tongue, and fauces were dry and [illegible] coated. [illegible] to dullness to percussion [illegible] crepitations at both bases especially on the r[illegible]. The breath sounds were not tubular. No abnormal[illegible] detected in heart, abdomen, or nervous system. Urine specific gravity 1

acid; no albumin or sugar. Blood examination: hæmoglobin 65 per cent.; white cells 13,750 per c.mm.; polymorphs 84 per cent.; eosinophils 1 per cent.; lymphocytes 9 per cent.; monocytes 6 per cent.

Subsequent course.—The temperature remained continuously raised, reaching 104° F., and, owing to the suspicion of psittacosis raised by the picture of an anomalous pneumonic condition and his hobby of keeping budgerigars, he was transferred to the City Hospital for Infectious Diseases on the 21st. Cyanosis appeared, dyspnœa became more severe, and drowsiness and muttering delirium developed. The temperature fluctuated between 100° and 103° F., but the pulse-rate remained relatively slow.

About the thirtieth day of the disease improvement began. The temperature and pulse-rate from now were normal, although there were still pneumonic signs in the lungs. By the forty-fifth day only a few fine râles were heard, and on the fifty-ninth day he was discharged in good general condition with no abnormal physical signs in the chest.

Radiograms taken on the fourteenth and twenty-seventh days suggested bronchopneumonia.

Blood from the patient was obtained on the eleventh day of the disease and sent to Prof. S. P. Bedson, who reported a strongly positive complement-fixation test against psittacosis antigen (see table).

Sputum obtained on the twelfth day was inoculated into mice by Professor Bedson but gave a negative result.

The suspected budgerigars were traced with some difficulty, and all four were killed and sent to Professor Bedson, who subsequently reported that he had successfully isolated the virus of psittacosis from mice inoculated with emulsions of the spleens of the birds. Inquiries were also made of the dealers from whom the patient had bought the infected budgerigars.

COMPLEMENT-FIXATION TESTS IN TWO CASES OF PSITTACOSIS

(antigens + 2 m h d)

Serum	Psittacosis	Control	Saline	Psittacosis	Control	Saline
	Case 1			Case 2		
½	++++	−	−	++++ ++	− −	− −
¼	++++	−	−	+++ ++	− −	− −
Known + ¼	++++	−	−	++++ ++++	− −	− −
Known − ¼	−	−	−	−	− −	− −
Saline	−	−	−	− −	− −	− −

It was found that they were dealers only and not breeders of the birds. Many of these birds had been sold locally in the area, and no cases of illness had been reported either among the birds or among persons receiving the birds, and the dealer's present stock of budgerigars, about thirty, seemed to be in good health.

Second admission.—After his discharge from hospital on May 29 the patient felt weak, but he started work again in the last week of June. Fourteen days later he complained of a sharp pain in his left side and called in his doctor, who told him he had pleurisy. He stayed in bed for fourteen days, but when he got up the pain returned. He began to sweat, but otherwise he did not feel ill. He was admitted to Newcastle General Hospital on August 3, 1938.

On examination he had a temperature of 101.4° F., pulse-rate 96, and respiration-rate 24. He was not in any distress. Lungs: there was dullness, with reduced breath sounds and absent vocal fremitus, over the left base. The chest was explored, and slightly turbid yellow fluid was found. Microscopical examination showed a moderate number of red cells and lymphocytes and a few polymorphs. No organisms were seen, and there was no growth after forty-eight hours. Radiography showed an effusion at the left base and between the left upper and middle lobes, with displacement of the heart to the right.

Subsequent course.—At the end of the first week the temperature had reached normal and remained there. The breath sounds had returned to a considerable extent at the time of his discharge on August 19, 1938. He was seen again in December, by which time he was working regularly and felt perfectly well. There was now no dullness over the lungs, and the air entry at both bases was normal. He wrote in June, 1939, that his health was excellent.

CASE 2.—A motor mechanic, aged 48, was admitted to Newcastle General Hospital on July 18, 1938. Three days before admission he felt suddenly unwell and thought that he had influenza. There were severe headache, generalised pain, and two sharp attacks of epistaxis. He had worked up to the time of admission.

On admission.—Temperature 101° F., pulse-rate 96, and respiration-rate 24. He was flushed, the tongue coated, and the breath offensive. The throat was not inflamed. The stools were relaxed and green. There was no rash. Lungs: at first there were no abnormal physical signs, but on the sixth day there was dullness at the left base, with a few crepitations, and tubular breath sounds were heard at the left base on the eighth day. Nothing abnormal was detected in the abdomen, heart, or central nervous system. The urine was acid, with a specific gravity of 1.030. No albumin. Sugar present.

Subsequent course.—The temperature remained continuously raised for a week, varying between 103° and 100.4° F. The pulse-rate never rose above 104. By this time the clinical picture of an illness resembling influenza with a continuous high temperature, lung signs, and severe prostration suggested psittacosis. The patient admitted that he had obtained two love-birds at a local fair on June 22. The birds did not appear to be healthy and they both died in about ten days. Neither his wife nor his two children were affected. The patient was transferred to the City Hospital for Infectious Diseases as a suspected case of psittacosis on July 25. Thereafter recovery rapidly took place. The temperature settled to normal by the fifteenth day of illness, and the signs in the left lung disappeared at about the same time. Convalescence was uneventful, and the patient when seen in July, 1939, was in perfect health and working regularly.

Blood was sent to Professor Bedson on July 26 (eleventh day of illness) for a complement-fixation test. He reported that "the serum contained a considerable amount of psittacosis antibody. Although the reaction it gives is weaker than that given by the majority of convalescent psittacosis sera, it is sufficiently strong to be highly suspicious" (see table). The suspected birds were disinterred but were found to be in such an advanced state of decomposition that it would have been useless to submit them for examination.

SUMMARY

Two cases of human psittacosis are described in which the infection was apparently derived from budgerigars. In one case the budgerigars were apparently healthy, but the virus of psittacosis was demonstrated in them; in the other case the birds were ill when obtained by the patient and later died.

Attention is called to the occurrence of the infection, often latent, in birds other than parrots, notably in the small psittacines but also in birds of the order passeriformes.

Our thanks are due to Dr. J. A. Charles, medical officer of health of Newcastle-on-Tyne for permission

to publish these cases, and to Professor B[illegible]don for permission to use his reports on the material submitted to him

REFERENCES

Haagen, F , and Maurer, G (1938) *Dtsch* [illegible] *Wschr* 64 568
Lancet (1939) 1, 708
Meyer K F , and Eddie B (1931) *Pro*[illegible] *Biol* N Y 31 917
— — and Stevens, I M (1935) *Am*[illegible] *Hlth* 25 571

A SIMPLE TREATMENT OF WOUNDS

By Philip Weatherbe, M[illegible] F R C S

LATE LECTURER IN SURGERY IN DAL[illegible] U[illegible]ITY, SURGEON TO THE CHILDREN'S HOS[illegible] N[illegible]OTIA

For thirty years I have use[illegible] method of treatment for all wounds from [illegible] to a compound fracture The meth[illegible] is simple, practical, and efficient, is one of [illegible] drainage Its advantages include the pr[illegible]ation of complications, a better functional resul[illegible] obtained by other methods, freedom from infla[illegible]ation and pain, and a minimum of scar tissue [illegible] only does it prevent sepsis in a clean wound on[illegible] overcomes sepsis already established

The technique consists in the [illegible] of wet boric lint to the surface of the wound The boric lint must contain equal parts by weight of boric acid and lint Immediately before being applied it must be saturated with cold water and not wrung out The entire area of the wound is covered with this wet lint, on top of which is placed oiled silk (best quality) which must in turn entirely cover the lint to seal it off hermetically and keep it from becoming dry The dressing is kept in place with a bandage or towel If the correct technique is carried out, the lint will still be wet on the removal of the dressing, even if left unchanged for as long as a week

This treatment has proved satisfactory in such various conditions as compound comminuted fracture of the skull accompanied by laceration of the brain, wound of the hand due to a pickaxe driven right through it, severing of all tendons on the back of the forearm by a punctured knife wound, gunshot wound of the hand, wound of the hand due to explosion of a dynamite cap, severe laceration of the hand with severing of tendons by a machine, compound comminuted fractures of the leg and arm, and suppurating wounds and whitlows

The following are illustrative cases

CASE 1 —A boy, aged 5, was admitted to the Children's Hospital, Halifax, with a compound fracture of the middle of the shaft of the right femur, accompanied by much contusion and laceration of the muscles After immediate open reduction and Lane's plating of the bone the wound was enlarged, tincture of iodine was applied to the surface, a rubber dam was inserted as far as the bone, and finally a dressing of wet boric lint and oiled silk was applied The dressing was first changed forty-eight hours later to remove the rubber dam, and for the second time five days later, when it was seen that there was no inflammation or other complication The final result was perfect alignment of the bone, with full normal function

CASE 2 —A boy, aged 6, was admitted to the hospital with a temperature of 102° F and a severely lacerated wound of his leg due to a motor truck running over it and crushing it from below the knee to the sole of the foot The skin was slit for the whole length of the laceration of the muscles Antitetanic serum was administered, and, without the use of any antiseptic and without any preliminary cleansing of the wound, wet boric-lint dressings were applied for six weeks, when skin was grafted on a healthy granulating surface The patient was discharged a month later with full function of the limb, the wound having healed perfectly

CASE 3 —A boy, aged 5, was admitted to the hospital with suppurative synovitis of the left knee-joint His temperature varied from 100° to 101° F His illness had lasted three weeks before admission He was treated by conservative methods for the first fortnight when large lateral incisions were made into the joint and staphylococcal pus was evacuated This was followed by daily active full movements of the joint and by continuous drainage by the application of dressings of wet boric lint On his discharge after four months he had perfect function

MEDICAL SOCIETIES

MEDICAL SOCIETY OF LONDON

At a meeting of this society on Dec 11, with Mr Zachary Cope, the president, in the chair, a discussion on

Induced Pyrexia

was opened by Dr F J Nattrass He compared malarial and artificial pyrexia in the treatment of general paralysis of the insane, and declared that whatever method of producing fever was used the fever alone had any importance, though it might not in all cases act by the same mechanism Theoretically, the method which most consistently provided a sustained fever should be the most successful, and, judged by this test, physical were superior to chemical or bacteriological methods Working with Dr S F Evans, he had obtained good results with a simple hospital made radiant heat cabinet in conjunction with an electrical recording thermometer The best insurance against disaster was a thorough knowledge of the chosen system and the closest observation and care of the patient He compared the figures of the Minister of Health for results of malaria therapy between 1927 and 1937 with the statistics collected by C A Neymann for the results of physical methods, and with the results obtained by his colleagues and himself The most outstanding point of superiority for physical methods was their low mortality, and during the last four years he had treated 213 cases without a death Unlike malaria, electrical treatment did not make the patient ill, and it caused relatively little discomfort Complications, such as anaemia and jaundice did not occur, and the fever could be precisely controlled Fever should be given until the maximum clinical response had been obtained On an average Dr Nattrass gave four to six rigors at 106° F each lasting eight hours Thermotherapy should be supplemented by specific treatment, especially with tryparsamide and bismuth These, however, should not be injected during the rigor Fever caused a fall in the cell-count of the cerebrospinal fluid, but any change in the Wassermann and Lange reactions was slow For sedation he had used paraldehyde and morphine but during the later stages of induction remarkably little sedative was needed An adequate water intake should be maintained and therefore [illegible] should not be reduced beyond the limits of the patient's power to drink freely An adequate [illegible] should be provided by saline drinks About 300 c cm of fluid might be lost every hour. For safe and effective treatment the staff must be specially trained, and the work ought to be done in a special department under a physician who was interested Not all cases of general paralysis were suitable for electropyrexia. The patient must be capable of a certain degree of cooperation and at least must be non-resistant. Fever must be used discriminately.

Fever was more potent in generalised than in primary gonorrhœa and was rather a reserve method for resistant cases, and for extensions such as gonococcal arthritis It probably had a specific lethal action on the gonococcus The temperatures associated with the best figures of cure were, however, near the limits of safety. The resistance of different strains varied considerably, and a rational treatment required a determination of the time taken to kill the organism present In 92 per cent. of cases cures had been obtained with a single course of ten hours' fever, this was practicable and safe for use as a routine The physical signs of tabes dorsalis were not influenced by fever but symptomatic benefit was said to be marked if specific drugs were also given Dr. Nattrass had not himself been impressed by the results in 12 cases which he had treated Neymann's results in cases of syphilitic optic atrophy suggested that fever deserved a further trial Gummatous cerebrospinal meningitis was resistant to chemotherapy but had proved amenable to pyrexia. No case had been made out for the routine use of fever in early syphilis In asthma claims had been made for 50 per cent of remissions; relapse was usual but remission could be repeated His own experience had not been encouraging In some cases of chorea movements had been promptly checked and the total duration reduced Active carditis was not a complete contra-indication, indeed, there was some evidence of benefit to the heart He doubted, however, whether fever was generally indicated in chorea, which usually responded so well to simpler measures.

Dr **George Graham** described methods of maintaining the temperature after the inductothermic current had been turned off. The patient was usually more comfortable when his temperature exceeded 106° F. and an electric fan blew on his face, than when he lay at a lower temperature without a fan Temperature could be adequately regulated by exposing one arm when it reached a certain height About gr. ¼ of morphine should be given after the fever was induced Nembutal had been tried but some patients were unduly sensitive to it, especially if there was liver damage. Though the Wassermann and the Sigma readings changed little, the cell-count showed a significant drop and the Lange curve showed a beneficial change after eight or ten fevers There was no evidence that the malaria parasite had any specific effect on the spirochæte All his 35 patients had bad herpes labialis Female patients with gonorrhœa were sometimes relieved by thermotherapy although the gonococcus persisted in the urethra He recommended fever for bad cases of asthma and had found that it reduced the quantity of adrenaline required to control the paroxysms Fever had been strikingly successful in one case of chorea—a dumb and violent child who had improved enormously after two rigors A case of rheumatic pneumonia had done very well and the pneumonia had not been made worse In the early stages of subacute infective arthritis or rheumatoid arthritis fever therapy was very effective, but if the disease was well established good and lasting results were unlikely to be achieved Dr. Graham's usual practice was to give four or five fevers, and then discharge the patient and see how much improvement took place. A few cases of spondylitis had been immediately relieved and their range of movement extended; fever should be continued until the sedimentation-rate had stabilised, showing that the acute phase was over. He believed that the nursing staff was usually quite capable of supervising thermotherapy.

The **President** said that the method might be interpreted as a direct criticism of physicians in general, who when a patient had fever seemed primarily concerned to combat it, instead of regarding it as an attempt of the organism to cure the disease. To lower the temperature did not always make the patient better, and might endanger him by inducing a false appearance of improvement. He asked if any drugs were known which would cause fever by their action on the heat-regulating mechanism. He was interested by the suggestion that the herpes of pneumonia was due to the fever. He had never seen it associated with heat-stroke, even when the temperature reached 106° F.

Dr C. B **Heald** asked whether the opener had tried the effect of milder pyrexia—e g., a temperature of 102° F—applied every day. This could be given under conditions which did not allow hyperpyrexia, one of the essentials of which was an accurate electrical thermometer. In chronic arthritis where a gonorrhœal origin was suspected it seemed to give results equal to those of hyperpyrexia.

Mr. J. **Johnston Abraham** criticised malaria for needing hospitalisation for a week or a fortnight, and for sometimes getting out of hand and becoming chronic Good results had been obtained with a temperature of 104° F. produced by T A B vaccine every three days for a fortnight Hyperpyrexia should be tried in the 10 per cent of gonococcal cases that resisted the sulphanilamide

Mr **Williamson Noble** spoke of the extraordinary success of short-wave current in secondary glaucoma, possibly by the production of change in the condition of the aqueous He had also used it with success, combined with colchicum, in a case of iritis.

Dr **Nattrass**, in reply, said that in disease only hyperpyrexia and not ordinary fever required active treatment. He knew of no drug which would act on the heat centre to produce fever. Only hyperpyrexia would cure gonococcal arthritis He did not intend to use induced pyrexia in acute rheumatic fever. Prolonged high fever might well be tried for intractable chronic iritis

---

Iodine and Politics.—Many years ago when a party of London surgeons was visiting the principal Swiss surgical clinics the conversation turned on the ability of Switzerland to keep neutral during the war period 1914–18 A Swiss surgeon then suggested that it was, in part at least, the result of thyroid deficiency widespread in Alpine regions Since that visit iodised salt has been given as a routine to school-children in some of the Swiss cantons and its effect is now visible in the younger generation. Nevertheless thyroid insufficiency may have something to do with the calm with which the Swiss people is approaching the situation today for the effects of iodising the population are still too recent. But let us not forget, our informant adds, that William Tell did not himself have the benefit of iodised salt. ("N'oublions pas, toutefois, que Guillaume Tell n'avait pas encore bénéficié du sel iodé.")

REVIEWS AND NOTICES OF BOOKS

Congenital Heart Disease

By JAMES W BROWN, M D Lond, M R C P, physician to the Grimsby and District Hospital, physician to the Grimsby Corporation and Lindsey (Lincs) rheumatism and heart clinics London: John Bale Medical Publications 1939 Pp 265 21s

UNTIL recent years congenital heart disease remained largely of academic post-mortem interest, and its clinical, sociological and even medico-legal significance was not realised The impetus of Maude Abbott's work has made it an important branch of cardiology, but it has needed concise presentation in this country This admirable monograph, inevitably indebted to a great pioneer, is based on a large series of personal cases observed over a number of years Special emphasis is laid on those lesions capable of clinical recognition by modern methods Recent work on development is clearly summarised The bulk of the book is concerned with the individual lesions, the classification of Abbott and Dawson into non-cyanotic and cyanotic groups being followed throughout As further acknowledgement of its importance, both in diagnosis and prognosis, cyanosis receives a chapter to itself The author also sets out the classification of T J Dry, based on broad embryological grounds For each group he includes an account of the radiological and electrocardiographical findings, and these special methods as well as the newer angiocardiography are further considered in a later chapter He discusses differential diagnosis fully, and gives a useful summary of the principal diagnostic points The book is attractively bound, well illustrated, and contains a full bibliography It will fulfil its author's deeper purpose if it promotes a more widespread knowledge of how to manage the lives of those who are born with a permanent heart defect

Relation of Trauma to New Growths

Medicolegal Aspects By R J BEHAN, M D, Dr Med Berlin, F A C S, surgeon to St Joseph's Hospital, Allegheny Pennsylvania London Baillière, Tindall and Cox 1939 Pp 125 22s 6d

THE publication of a comprehensive review on a broad statistical basis of the relation between trauma and the development of new growths is an event of considerable importance to forensic medicine The whole subject has been so coloured by the overweening influence of circumstantial evidence that the literature is probably less reliable than that on any other medical subject Dr Behan's book is comprehensive, well arranged, discoursive and reputable, though he shows a certain lack of grip on the almost unmanageable mass of detail which must perforce go into a volume of this kind He has clearly set out to produce the evidence rather than return a verdict A third of the book is given up to the validity of the evidence and this part culminates in a series of "postulates." Dr Behan goes on to detail the literature of occupational new growths and ends with successive chapters on tumours in the various organs He quotes innumerable cases in detail and there are extensive references at the end of each chapter the bibliography is easy to handle and reliable To those engaged in both medicine and the law in relation to civil compensation the book will be a virtual necessity, and "to the harassed doctor who on a pillory between cupidity and conscientiousness must decide to satisfy his conscience and not appease his greed," it will prove a trustworthy guide

Blood Groups in Africa

By RONALD ELSDON DEW, M D, assistant pathologist Johannesburg The South African Institute for Medical Research 1939 Pp 91

THIS monograph contains the results of long and patient field-work on the blood grouping of peoples over a large area of East Africa The expedition travelled 15 000 miles under primitive conditions and had many adventures. Dr Elsdon Dew concludes that the original black race must have separated from the remainder of mankind before the Bush and Hottentot races The Egyptians and the pygmies have probably been responsible for the introduction of gene B to Africa, and it migrated down the western side of the continent from both centres The proportion of A among the blacks must have been considerable before B was introduced, having spread mainly on the eastern side of the continent and reached a maximum in the pygmies Both genes spread into the various black peoples The intermediate Bantu carried gene B far to the south, where contact with the Bush peoples decreased its proportion, and to the west coast, where it may have been reinforced by the transmission of B from Egypt The high and equal proportion of A and B among the Hottentots suggests that these peoples are predominantly of Egyptian or proto Egyptian type The results are tabulated in great detail and illustrated by many ingenious diagrams

Diathermy

Short wave Therapy, Inductothermy, Epithermy By WILLIAM BEAUMONT, M R C S, physician-in-charge of the physiotherapy department, Westminster Hospital, London London H K Lewis and Co 1939 Pp 303 10s 6d

THIS comprehensive manual is addressed both to the student preparing for the examination of the Chartered Society and to the practitioner interested in diathermy Successive chapters describe the physical character of the current employed, the generators and physiological basis of treatment the risks, and the general and local application of this treatment to disease, and finally high frequency and short wave diathermy Dr Beaumont's attempt to base treatment on physiological considerations reveals the paucity of our knowledge in this field The medical reader will be struck by the contrast between the highly technical language of the chapters dealing with current and apparatus and the elementary and rather diffuse presentation of those on clinical applications This inequality probably springs from the double purpose of the book

A Textbook of Medical Bacteriology

By DAVID L BELDING, M D, professor of bacteriology and experimental pathology, Boston University school of medicine, and ALICE T MARSTON, Ph D assistant professor of bacteriology and immunology, in the school London: D Appleton Century Company Pp 502 21s

IN this book Professor Belding and Dr Marston have aimed at giving a concise yet comprehensive account of the applications of bacteriology to medicine They have treated the general aspects of the subject adequately and have given more attention than is usual to such things as the transmission of communicable diseases, man as a carrier of infection, normal reservoirs of infection and bacteriological [illegible] serological diagnosis, and have allowed sanitary and economic bacteriology sixty pages They have laid their main emphasis on the practical applications of bacteriology and immunology to public health and preventive medicine and have dealt with the purely scientific aspects of immunity in a separate section In spite of the inclusion of much material not found in the smaller textbooks the treatment of the common bacterial infections has not been curtailed The illustrations are few and some of them are not particularly instructive, but there are many useful tables throughout the book

Sanitary Inspector's Handbook

(4th ed.) By HENRY H. CLAY, F.R San I., F.I S.E., lecturer in sanitary engineering, London School of Hygiene and Tropical Medicine. London: H K Lewis and Co. 1939. Pp. 528. 17s 6d

THIS may now be considered a standard textbook for the sanitary side of public health The chief alteration in the new edition consists in the complete revision of the section on food and food premises in the light of the Food and Drugs Act, 1938 The consolidation of the general law relating to public health has also allowed the sections on sanitary law to be more detailed and these and other improvements have required an additional 30 pages, making a total increase of 142 pages over the first edition published in 1933 Perhaps the time has now come for pruning the growing tree, but it is hard to find any dead wood to cut away. A possible improvement might lie in consolidating the scattered references to port health work into a separate section, including some reference to the hygiene of crews' spaces If canal boats are worthy of a special chapter, surely port health administration also requires one?

Cancer of the Colon and Rectum

By F. W. RANKIN, M.D., F.A C S , surgeon to St Joseph's and Good Samaritan Hospitals, Lexington, Kentucky; and A. STEPHENS GRAHAM, M S , F A.C S , surgeon to Stuart Circle Hospital, Richmond, Va , and assistant professor of surgery, Medical College of Virginia London · Baillière, Tindall and Cox 1939 Pp 358 30s

THIS book is divided into three parts The first deals with anatomy and physiology, including a full account of the vascular supply of the colon and rectum, with its surgical applications The authors discuss the incidence of carcinoma of the large intestine and say that according to the latest American statistics it comprises about 15 per cent of all cancers. They describe the pathology of adenocarcinoma in detail and some beautiful photomicrographs, contributed by Dr. A. C Broders himself, clarify the description of his four grades of malignancy. Part two deals with operability and prognosis, with statistical tables indicating the expectation of cure according to the site of the primary lesion, the grade of malignancy and the depth of spread as shown by Dukes's classification. In view of Dr Rankin's unrivalled experience the chapter on choice of operation is extremely valuable Part three covers the complete range of operations from cæcostomy to excision of the rectum with a wealth of practical details The authors' outlook in regard to treatment is orthodox and unhesitatingly radical, and their opinions will be studied with particular comfort by that large body of surgeons who, in extirpating cancer of the rectum, believe with Rankin that "radical surgery is well worth while and that radical surgery may not be applied save by the use of colostomy"

Human Pathology

(5th ed.) By HOWARD T. KARSNER, M.D., professor of pathology, Western Reserve University, Cleveland, Ohio. London: J. B. Lippincott Company. Pp. 1013 45s.

IT is a pity that Karsner's Pathology is not better known in this country, for it has much to commend it and it is usually the first line of reference for teaching and working pathologists who are familiar with it It is arranged on orthodox lines, being divided into general and special pathology, and rightly eschews the teleological interpretation of disease The section on general pathology is wisely fuller than is usual in textbooks, for if a student thoroughly understands the underlying processes of disease special pathology is simple and can to a large extent be arrived at by deduction. Throughout the book there is a wide appreciation of the recent advances of experimental pathology, which are too often ignored in standard textbooks. In the special pathology section the chapters on disorders of the intestinal tract and endocrine glands are particularly good but that on blood-diseases is disappointing, pernicious anæmia being disposed of in a page and the more recent work on hæmoglobin breakdown and iron metabolism being omitted. The chapter on the female genital organs, though dealing fully with the endocrinal tumours of the ovary, omits all mention of the functional changes in the endometrium. Yet as a whole the book is an admirable summary of modern pathological knowledge It is well illustrated, and a particularly pleasing feature is a full bibliography of the more important papers at the end of each chapter.

Chemistry of Synthetic Drugs

(4th ed.) By PERCY MAY, D Sc. Lond , F I.C , consulting chemist and patent agent; and G. MALCOLM DYSON, Ph D , F.I C , A.M I.Chem.E., chief chemist, Genatosan Ltd. London: Longmans, Green and Co 1939. Pp. 370 21s

THE most interesting feature of the fourth edition of this well-known textbook is the stress laid by the authors on the correlation of the chemical structure of synthetic drugs with their pharmacological action. It is natural that this should be so in a British book on synthetic drugs since it is this aspect of the subject which has proved most attractive to workers in this country. Nevertheless, it is still only possible to formulate within narrow limits rules connecting chemical structure with pharmacological action, and in the discovery of a useful new drug patience, perseverance and luck play at least as important a part as the skilful application of chemical and pharmacological knowledge

Though the book has been revised thoroughly and in most respects is well up to date there are points here and there which need attention. Thus, the authors seem to be unaware that pilocarpine and its associated alkaloids have been synthesised and that there is no longer any doubt as to the stereochemical relationship of pilocarpine and isopilocarpine In the section dealing with organic antimony compounds no mention is made of the careful work of Gray and Trevan on the constitution of urea-stibamine, nor the useful clinical investigations of Napier in India and of Struthers and others in China, which have placed the treatment of kala-azar on a sound footing But the authors have produced a remarkably interesting book, which should be particularly useful now when war has brought home to the medical profession that in spite of progress in the home production of synthetic drugs we are still more dependent than we should be on foreign sources of supply.

THE LANCET

LONDON SATURDAY, DECEMBER 23, 1939

GET TOGETHER

We hear much of active service but the conditions of stationary warfare in the winter months have condemned a large part of the medical profession to something more like inactive service On another page Professor Ryle suggests a recipe to counteract boredom and maintain interest and efficiency, and it is natural that one regius should go back to another for an illustration of what he has in mind and recall the well known chapter in "Æquanimitas" on the educational value of the medical society Curiously enough Osler was not by nature a clubbable person Ma [illegible] Osborne who lived in the same house at Montreal when he became the "baby professor" at McGill, and used to watch him coming down the street at a swinging pace with the spring on the ball of the foot, noted the early struggle to overcome his lack of elocution, his shyness and the Osler reserve It is an encouragement to us all to think of Osler not as born complete with the qualities that make a medical society successful When he wrote that no class of man needs friction so much as physicians and no class gets less—"the daily round of a busy practitioner tends to develop an egotism of a most intense kind to which there is no antidote"—he was speaking of things of which he knew, and was well aware of the tendency of solitary work to make a man touchy, dogmatic, intolerant of correction and (his own phrase) abominably self-centred To this mental attitude, said Osler, the medical society is the best corrective, and a man misses a good part of his education who does not get knocked about a bit by his colleagues in discussions and criticisms Professor Ryle looks back on the last war as one of his most vivid and instructive experiences The good comradeship, the absence of the competitive evil, the living and working at close quarters, the unanimous effort to do the best possible for the individual sick or wounded, all this, he remarks, provided an atmosphere not yet inherent in less united civilian organisations In any medical society it is this factor of personal contact which supplies the dynamic The member of a live society feels that his job is not solitary and he gets the chance of a working friendship with someone whose approach to life and medicine is congenial to his own Moreover there is in our present situation the added advantage of relative juvenility and it should hardly be necessary to revive the rule of an old Gloucestershire society to admit no new member whose age exceeds 40 It is admitted, however, that the social age of many venerable officers of medical societies remains at a vigorous prime

CANCER CLINICS

One striking result of the dislocation of ordinary hospital organisation has been the urgency of the public demand that facilities for treating cancer should again be provided The campaign to make known the importance of early diagnosis has clearly carried conviction With this in mind the section of the Chief Medical Officer's report which deals with cancer merits careful study He begins by pointing out that the number of deaths attributed to cancer shows the customary rise Cancer of the mouth, including lip, tongue, mouth, tonsil and jaw, accounts for 2308 male and 432 female deaths, stomach 7063 male and 5748 female, colon and rectum 6125 male and 5554 female, lung 2030 male and 823 female, breast 6922 and uterus 4162 The grand total being 68,605 These are among the most important cancers, and some of them are the accessible growths curable in the early stages The National Cancer Service, defined in the Cancer Act 1939, represents the effort of the Minister of Health to coordinate through the local authorities the diagnosis and all the methods of treating cancer—surgery, radium and X rays The existing facilities for the surgical treatment of cancer are thought to be adequate, though it is recognised that if the service succeeds in bringing patients to treatment at an early stage increased facilities will be required The stock of radium and the deep X-ray apparatus with the specialised medical staff necessary for radiotherapy are not so easily obtained Excluding London, there are now 18 radium centres set up by the National Radium Commission, and new centres will probably be required Local authorities will have to unite to make centres, or will make arrangements with suitable voluntary hospitals. Their schemes will be submitted to the minister, who will have the help of a specially appointed subcommittee of experts on cancer on which all the branches of medicine concerned with treatment and administration are represented This committee should in our opinion advise against any great increase in the number of centres Even common forms of cancer are seen in a very small number of cases per unit of population, and because the study of a number of similar cases always makes for greater efficiency in treatment, as many as possible should be collected at large major centres, where the best that can be offered of surgery, radium and X rays is available It is proposed to establish consultative and diagnostic clinics in smaller towns in the region, staffed by visiting experts from the centre These clinics will be held when possible in local general hospitals It is clear that it must be possible for the visiting surgeon to recommend the transfer of patients to the centre for special investigations or surgery requiring a high degree of skill A good example is an abdominoperineal excision of the rectum where the advantage of having a surgeon who performs the operation often is great

The number of centres where first-class radiotherapy can be given is limited not so much by the expense of the apparatus as by the supply of trained therapists. It is only within the last few years that it has been recognised that efficient radiotherapy is the province neither of the surgeon, who occasionally implants radium, nor of the radio-diagnostician giving what time he can to X-ray therapy. To use both radium and X rays to the best advantage some surgical training and a good grasp of radiation physics are needed, and for the purposes of the act clinical knowledge of cancer in all its manifestations as well. To ensure that radiation treatment is in charge of really competent workers, and to give opportunities for training therapists, a high degree of centralisation will be more effective than the creation of individual treatment units.

DEGREES OF INSANITY IN LAW

MEDICINE and the law do not regard responsibility from the same angle The Atkin committee, containing a strong forensic element, obviously desired to discourage the " mistaken notion " that all insane persons are irresponsible " The far-reaching effect of granting immunity to every one who can be said to be of unsound mind is perceived," it observed, " when the medical conception of unsoundness of mind is considered " The medical man's anxiety that insanity and irresponsibility should be not identified arises in a different way; the identification, it is feared, might deprive mental patients of such legal powers—e g , the making of a will—as they now possess. In non-criminal contexts the law has evolved its own classifications of insanity. The 17th century took the person who was *non compos mentis* and classified his condition under three types of *dementia—naturalis, accidentalis* (subdivided under *furor, rabies, mania* and so on), and *affectata*—i e , drunkenness. To come down to modern times, legal writers have pointed out that section 341 of the Lunacy Act of 1890 allowed " lunatic " to include " idiot," although in the Idiots Act of 1886 (repealed and replaced by the Mental Deficiency Act of 1913) " lunatic " on the one hand and " idiot " or " imbecile " on the other were mutually exclusive terms. Recently the laws which have permitted incurable unsoundness of mind to be a ground of divorce in England, Scotland and Northern Ireland have linked the dubieties of the mental state with the solid fact of five years' continuous detention in a mental hospital. Here the courts accept a very different standard from that of criminal irresponsibility As to wills the existence of insanity in a testator at the time when he makes his will creates a presumption against testamentary capacity; confinement in an asylum has strengthened the presumption. But the presumption can be rebutted by evidence that the insanity or delusions are irrelevant to the matters which form the subject of the will, or by evidence of a lucid interval at the material moment A lucid interval is not merely the cessation or suppression of the symptoms of mental disease nor, according to Lord Eldon in the Holyland case, need it be a complete restoration to the mental vigour previously enjoyed Lord Eldon, it may be added, should have been a good judge of lucid intervals. As Lord Chancellor to George III during the periods of the King's unfortunate disability, he had to decide from time to time whether his sovereign was mentally fit to give the royal assent to Acts of Parliament or to approve royal commissions for the purpose. There was a period in 1804, in the midst of war, when the establishments of the armed forces of the Crown might have lapsed for want of the royal assent to a Mutiny Act Lord Eldon fortunately found the King able to assent. There was grave doubt in 1811 when the Lord Chancellor almost miraculously found His Majesty fit to assent to the bill appointing a regent. Lord Grey, in a House of Lords debate, thought that Eldon's hasty opinion, formed during a brief interview, was hardly sufficient to outweigh the considered conclusions of the King's medical attendants. Campbell, who wrote Eldon's life, relates that the Lord Chancellor always stoutly asseverated that the royal signature was never obtained, nor the royal pleasure taken on any act of State, when the royal mind was not clear and collected This statement, he added candidly, it is very difficult to credit.

GESTURE

SOME years ago a deaf-mute patient presented himself at the National Hospital, having had a mild stroke. An incomplete right-sided paralysis passed off quickly, but it left him with an inability to express himself by way of his accustomed sign-talk. Aphasia had in fact occurred in a mute person This case led Dr. MACDONALD CRITCHLEY to explore that older instinctival language—the language of gesture—and he has recorded his findings in a delightful little book [1] Evidence from developmental and comparative philology suggests that gesture may have preceded verbal speech. But it is more than a parent, for gesture has expanded in company with its offspring. From it have sprung such art-forms as miming, pantomime, and aspects of dancing, and such everyday actions as saluting, shaking hands, and kissing Demosthenes considered that the first, second and third points in oratory were movement —but now the microphone has robbed the public-speaker of the language of gesture, and until television comes into its own he must rely more upon the reason than the emotions of his audience. Dr. CRITCHLEY would separate gesture from pantomime Gesture, he says, should be used only for movements which accompany speech for the sake of emphasis, while pantomime is dumb-show aiming at expressing an idea. The salute is then pantomime, the uplifted hands of the soldier as he cries " Kamerad " is gesture. This distinction is too flimsy to be of great value, though it has a certain convenience In both these actions, the underlying emotional intention is the same—to demonstrate that the hands carry no arms

---

[1] The Language of Gesture. By Macdonald Critchley, M D , F R C P London. Edward Arnold and Co 1939 Pp 128. 5s

The origin of speech is still an unsolved problem An imitative origin has been postulated, the "bow-wow" and "ding dong" hypotheses of MAX MULLER, to cover such words as hum, buzz, chirp, squeak, purr and twitter An interjectional theory, dubbed by MULLER the "pooh-pooh" theory, suggests that certain sounds follow naturally from certain emotions [illegible] sound "st!" suggests stopping—as in [illegible] "st!!", whist and hist) PAGET suggested that the tongue, lips and jaw unconsciously followed the gestures of the hands—the "yo heave ho" hypothesis In vowel sounds he found expressive meanings Thus "ah" in English suggests something wide, flat or spacious, "ee" suggests [illegible] or the little (steeple, teeny, peak), [illegible] denotes a cavity (yawn, maw), "oo" something tubular or enclosed (room, tube, loop), and so on A test on oneself will illustrate that each of these vowel sounds carries with it an appropriate gesture

In left-sided cerebral lesions speech suffers much more than gesture Most aphasics can express themselves clearly by pantomime Sometimes indeed pantomime language may develop to such a degree as to compensate for the loss of normal speech, and Dr CRITCHLEY tells of a girl who could take telephone messages and communicate their contents to her family solely by means of pantomime In some diseases—disseminated sclerosis, Wilson's disease and chorea, for example—the movements of gesture are exaggerated, while the strange poses and attitudes of schizophrenics often seem to have an obscure symbolic meaning The sign-talk of deaf-mutes is probably very ancient, although the modern deaf-and-dumb alphabets date only from the eighteenth century In France and the U S.A the unimanual system is usual, while in England and elsewhere both hands are used In addition to the usual dactylography, all deaf mutes possess a manual shorthand, in which a single gesture may indicate a word, a phrase, or even a sentence This language has not been codified and is largely international Many of its signs are probably instinctive survivals of the pre-speech era, for example, patting the stomach to denote hunger or tapping the brow to indicate thought Dr CRITCHLEY discusses sign-language among primitive peoples, in religion, in secret societies and in oriental literature, and the use of gesture in conversation and public speaking, miming dancing and the theatre Finally, he sums up the evidence for gesture as a precursor of speech and concludes that both probably developed pari passu

ANNOTATIONS

HEALTH OF CHILDREN OF SCHOOL AGE

FOR the past four months the school health services, built up with so much labour during the last thirty years, have been allowed to lapse and the position cannot be met by rhapsodising on the delights of children being in the country In the first place at least a million children are where they were before the war and, having no school to attend, their standard of cleanliness has dropped below its natural level, whatever that was The authorities have now decided that the time has come when the school health services must be resumed in their ordinary premises, subject to being available for casualties if need arose Unfortunately it is not immediately practicable to provide education in school for all the unevacuated children, and since the health services are based upon the schools means must be taken to enlist the cooperation of parents, care committee workers and health visitors in order to bring to school clinics all the children in need of treatment A circular issued by the Board of Education on Dec 14 enjoins local education authorities to make up the leeway of the last four months The objective should be to secure a constant stream of children to be overhauled and where necessary treated in the hope of completing the review within the next three months Even when the children are not attending school it should be possible to provide free meals and milk for them or to arrange for parents to send their children to schools or centres to receive milk on payment In the reception areas there is a special difficulty to be faced—namely, the inadequacy of the medical, dental and nursing staff to meet the needs of the largely increased number of children Local authorities are reminded that they are responsible for providing evacuated children with health services of the same standard and scope as are provided for the local children. Circumstances of many families have worsened as a result of the war and a close watch on the nutrition of the children is essential in order to detect new cases of undernourishment at an early stage Actually during October there was a large reduction of the milk consumed under the milk in schools scheme and this must speedily be put right The circular is right in insisting that the health services, being now doubly important, should be strengthened and extended wherever they do not fully meet the needs of the children

NEW VIEWS OF TOOTH ERUPTION

A NEWLY erupted tooth has the enamel covered with a thin horny cuticle known as Nasmyth's membrane of epithelial origin It used to be thought that this extended to the neck of the tooth and there blended with the inner surface of the collar of gum surrounding the neck of each tooth It was imagined that when a tooth first pierced the gum there was a space between the gum extending to the neck of the tooth and that the process of eruption, partly by an active advancement and partly by a denudation or uncovering of the crown, resulted in this hood of gum shrinking until the tooth was fully erupted When this stage was reached there was a narrow collar of gum surrounding the neck of the teeth and forming what was called the gingival trough Professor Gottlieb[1] challenges this conception at several points The horny cuticle consists of two layers, one of which invests the whole surface of the enamel while the outer layer is reflected outwards and unites with the epithelium of the gum But the point of reflection instead of being always at the neck of the tooth, is at first much nearer the extremity of the crown and migrates rootwards pari passu with the eruption of the tooth. Eruption consists of two phases, active and passive The first is the active advancement of the tooth until it comes into occlusion with its antagonist When this stage has been reached the gum may still cover part of the crown of the tooth and the reflection of the epithelial cuticle may be in the region of the midline of the crown The second stage of eruption then begins This consists essentially of a migration of the epithelial attachment towards the root accompanied by a proliferation of epithelial cells into the periodontal membrane This goes on until the whole crown is uncovered But it does not end there and goes on further until a part of the root becomes exposed. According to Gottlieb there is never at any stage a gingival trough or space between the gum and the tooth but merely a crevice. This passive eruption is a long-continued one and may go on for years It is not necessarily uniform round the circumference of a tooth but may take place to a greater extent on one surface The recession of the gums which leaves a part of the root exposed is thus a normal process and does not of necessity indicate a pathological condition The borderline between physiology and pathology is somewhat indeterminate. The presence of local irritation or the influence of some abnormal metabolism may accelerate this process and turn a physiological change into a pathological condition Gottlieb describes three forms of the condition known familiarly as pyorrhœa First there is dirt pyorrhœa of local causation where the irritant factors bring about a disorderly and unusually rapid passive eruption, secondly there is parodontal pyorrhœa characterised by a purulent pocket, and lastly, there is diffuse alveolar atrophy leading to a wandering of the teeth owing to weakening of the alveolar bone The two latter are due to metabolic factors Gottlieb's theories are novel but the volume of proof he adduces leaves little doubt that the process he describes is substantially correct. There is some comfort in the reflection that the process of getting "long in the tooth" is an inevitable stage in eruption, and not necessary a form of pyorrhœa

---

[1] [illegible] of the Tooth and [illegible]

RECURRENT ABORTION

IN their investigation into recurrent abortion MacGregor and Stewart[1] decided that the first step was to find out as much as possible about the normal production of hormones during pregnancy, particularly that of the gonadotropic hormone and progesterone They did not consider it practicable to estimate these substances in the blood, so that the output was calculated on the urinary excretion After what must have been a large number of tedious and difficult assessments, they put forward the hypothesis that the pituitary gland through its secretion of gonadotropic hormone stimulates the ovary and so the production of progesterone; this in turn stimulates placental production of gonadotropic hormone which reacts on the ovary, the corpus luteum ultimately stimulates placental activity to the point at which it also begins to secrete progesterone, and thereafter the corpus luteum diminishes in activity The danger period in pregnancy is therefore the time when placental activity is developing and corpus luteum activity is retrogressing. It is well known, in fact, that this danger period is towards the ninetieth day of pregnancy, just the time when the early high excretion of hormones is settling down to a steady, relatively low rate They also draw the conclusion that from the known efficacy of small doses of progesterone the margin between adequate and inadequate progesterone production is extremely narrow. Though the dosage is relatively small, the injection at least twice weekly of such an expensive substance as progesterone goes against a wide application of this treatment Dodds[2] has lately suggested that in Pregneninolon there may have been found a substance effective when taken by mouth. If this should prove to be for the corpus luteum a counterpart of stilbœstrol for the follicular hormone, then the treatment of recurrent abortion should be greatly simplified.

THE SYNAPSE

THE idea of the synapse and its strategical importance in central coordination and integration need exponents no longer; interest and experiment is now focused on the problem of how it works. And it is fitting that a collection of papers[3] on the synapse, reprinted from the *Journal of Neurophysiology*, should be dedicated to C S. Sherrington, for he introduced both the concept and the word itself, and his classical experiments have shown no strain under the weight of subsequent work Lorente de Nó, by his skilful use of the fibre tracts entering the oculomotor nucleus, has clarified the process which takes place at a single fibre-termination or synapse The packets of energy brought by nerve impulses in one fibre are mingled with those brought by a score of others, and the meeting ground is the extended surface of the cell-body of the next neurone in the chain Their effects depend not only on the numbers which arrive but on how they are spaced from one another in both time and distance. Singly, they are evanescent and ineffective It is now clear that the state of excitation produced in a group of motor neurones by stimulation of afferent nerves owes many of its characteristic properties—such as its relatively long life—to the multiplication of impulses by self-re-exciting chains of intermediate neurones The actual event occurring at a single synapse is as transient as the disturbance in a fibre when an impulse passes. This leads to the crux of the problem Does something quite new and unexpected happen at the synapse, or is transmission of excitation from one neurone to the next merely a special case of nerve conduction as we know it in the continuous fibre? Gasser and Erlanger show that the properties of nerve-fibres and their impulses are by no means simple or incapable of furnishing a basis for the explanation of central phenomena Lorente de Nó deals with the centre itself In his own words "the action currents of nerve impulses may prove not to be the agents for synaptic transmission, but everything happens as if they were"

In point of fact, few would venture to do more than mention the possibility of an alternative in the central nervous system. But in autonomic ganglia it seems that there is more than a possibility that preganglionic act on postganglionic neurones by liberating acetylcholine instead of or in addition to action currents The superior cervical ganglion has been a battle-ground in this country for some years, and Bronk, who uses the stellate ganglion, does not attempt to decide the conflict one way or the other. The evidence for humoral transmission from postganglionic autonomic fibre to effector organ is overwhelming, and there is also evidence that acetylcholine

---

1. MacGregor, T N and Stewart, C P, *J. Obstet Gynæc* October, 1939, p. 857

2 Dodds E C, *Lancet* Nov 4 1939, p 999

3 Symposium of the Synapse By H S Gasser, Joseph Erlanger D. W Bronk R L de Nó and Alexander Forbes Reprinted from *J Neurophysiol* 1939, 2, 361 Springfield, Illinois Charles C Thomas 1939 Pp 114 $2

is concerned in the passage of excitation from motor nerve to voluntary muscle The latter is a rapid type of transmission, and belongs, moreover, to the somatic nervous system The working of the central synapse cannot, therefore, be predicted from its affiliations, but must rest entirely on experiment The proponents of electrical transmission are [illegible] in possession of the field

PHONOCARDIOGRAMS IN SCHOOL CHILDREN

INTEREST in the electromechanical recording of the normal and abnormal sounds produced by the heart seems likely to be stimulated by the excellent work done in this field in South America Boone and Ciocco[1] have investigated the [illegible] cardiograms, or "stethograms," of 1482 [illegible] school children of both sexes The tracings were [illegible] with regard to rhythm, configuration of [illegible] sound waves, systolic vibrations, split second sound, diastolic vibrations, and third heart sound In this preliminary report they attempt no correlation with the findings of ordinary clinical examination or with the electrocardiograms which will be reported on later The only abnormalities of rhythm [illegible] were isolated extrasystoles (nine cases) and bigeminy (one case) due to alternate extrasystoles The [illegible] interval was free of vibrations in only 41 per cent of cases, the remainder showing some vibrations [illegible] usually of small amplitude The incidence of these vibrations was found to decrease with increasing age A third heart sound was discovered in about 13 per cent, though the method of its production, which can be deduced from simultaneous venous pulse curves, is not given, split-second sound in 16 per cent, and diastolic vibrations in 0 5 per cent These observations should help in defining the normal stethographic pattern in children, and may also aid the early recognition of cardiac pathology when the significance of variations from what is termed the basic pattern has been assessed For this purpose long observation of the children and correlation of the stethographic picture with *clinical findings* is obviously required

IMMONDS'S DISEASE AND ANOREXIA NERVOSA

UNTIL recently most people have regarded Simonds's disease and anorexia nervosa as essentially imilar, the distinction resting mainly on the discovery f an initial psychological factor which is responsible or the loss of appetite in anorexia nervosa Valuable bove other descriptions of anorexia nervosa is that of ull, now 70 years old, to whom we owe both the name nd the generally accepted view that the anorexia nd associated consequences are the product of a isordered mind It is a tenet of the English tradition hat the clinical features of the established disease are he simple result of starvation However, between a hird and half the cases have amenorrhœa either with he anorexia or even before it, and this cannot be ttributed to starvation The menses may cease suddenly in healthy women as the result of mental strain r shock Thus Macgregor[2] found that among first-year nurses at the Edinburgh Royal Infirmary no less han 20 per cent had during the first year of their raining an amenorrhœa of from one to ten months' uration Such a functional amenorrhœa is accompanied by a diminution or absence of sex hormones n the urine

The original paper of Gull[3] had little influence utside this country, and in particular it remained almost entirely unknown in German speaking countries Indeed, up to about 1930 anorexia nervosa seems to have attracted no special attention in Germany The description by Simmonds[4] of the clinical effects in the human being following the destruction of the anterior pituitary aroused some interest in anorexia nervosa, and resulted in large numbers of cases being described, in all good faith, as instances of Simmonds's disease Sheldon[5] has found over 18 instances of this misreporting, and about half the published cases of anorexia nervosa are indexed under other names. Why is it that so many people regard anorexia nervosa as organic and, with almost complete unanimity, incriminate the anterior pituitary as the cause of the disease? In some fashion we have to incorporate into the English way of looking at anorexia nervosa an adequate explanation for such a widespread error. The two conditions have in common loss of weight, amenorrhœa, lowered basal metabolism, alterations in carbohydrate metabolism, subnormal temperature, slow pulse and hypotension The agreement is far too close to be a matter of mere coincidental similarity One is forced to the conclusion that at some stage a common path is used in the production of these symptoms If the body adjusts itself to a diminished food intake by an immediate decrease in anterior pituitary activity, it becomes merely a question of words whether one regards the signs of anorexia nervosa as being a functional Simmonds's disease or as being due to starvation

Sheehan[6] has now thrown further light on the problem by detailed analysis of 51 published cases of Simmonds's disease due to postpartum necrosis of the anterior pituitary He makes the startling estimate of 2 severe cases and 7 lesser ones per ten thousand of the population, if this is so, there must be cases sitting in every outpatient department, whether medical, gynæcological, or neurological The original necrosis occurs at a delivery which is invariably complicated by collapse, usually as a result of severe hæmorrhage Following this there develop a number of signs and symptoms which vary in frequency and severity according to the size of the original necrosis, and probably according to other factors A typical severe case may be thus described

> During the puerperium there is no secretion of milk and there may be hypoglycæmia Later the uterus becomes abnormally small and the external genitalia atrophy Menstruation does not return and libido is absent There is a gradual loss of axillary and pubic hair The patient is apathetic and dull, unable to do her housework and very sensitive to cold She may appear myxœdematous or prematurely senile Weight is little altered unless appetite is absent Blood pressure is rather low and the basal metabolic rate is some 25 per cent below normal Hypochromic anæmia is present sometimes associated with a definite eosinophil leucocytosis The blood cholesterol may be a little raised and the blood-sugar rather low, but sugar tolerance tests give a curve with a delayed fall After 10, 20, or 30 years the patient may become more obviously myxœdematous, or may develop mental changes with anorexia and some loss of weight At this stage the anæmia may become hyperchromic, the basal metabolic rate may fall to minus 35 per cent, the blood pressure remaining normal Finally, usually as a result of some intercurrent illness or a phase of severe anorexia, the patient goes into coma and dies, usually with hypoglycæmia Post mortem the anterior pituitary is represented chiefly by the large scar of the original postpartum necrosis the suprarenal cortex is atrophic

---

[1] Boone, B. R., and Ciocco, A., *Milbank Mem Fund Quart* October 1939, p [illegible]
[2] Macgregor, T. N., *Brit med J* 1938, 1, [illegible]
[3] Gull, Sir William, *Med Times* [illegible] 2 534
[4] Simmonds, M., *Dtsch med Wschr* 1914, 40, 322
[5] Sheldon, J. H., *Proc R Soc Med* 1937, 30, 738
[6] Sheehan, H. L., *Quart J Med* N S 8 277

the thyroid usually shows fibrous atrophy, the ovaries and uterus are shrunken and the viscera are small.

Substitution therapy is as yet not satisfactory; but if the woman becomes again pregnant the symptoms are permanently cured, probably as a result of hypertrophy of the remaining portions of anterior-lobe tissue In most reports it is stated that the characteristic and fundamental symptom of Simmonds's disease is severe emaciation This view probably derives from the fact that three of the original cases described by Simmonds were so thin as to lead him to introduce the rather misleading term "pituitary cachexia" Actually, any severe degree of emaciation is, however, quite uncommon, and the patient who begins to lose weight rapidly usually dies before she becomes seriously emaciated. This standard requirement of a severe loss of weight for the diagnosis of Simmonds's disease appears to be the reason for most of the errors in diagnosis Many cases of Simmonds's disease are probably missed because the patients are of normal nutrition. On the other hand, a large number of spurious cases are diagnosed on the basis of severe loss of weight, combined with amenorrhœa and a low basal metabolic rate Most of these cases are really cases of anorexia nervosa

In textbooks Simmonds's disease is usually illustrated by the photograph of a woman reduced to skin and bone Such pictures are never taken from true cases of Simmonds's disease, in which the state of nutrition is hardly ever sufficiently abnormal to merit photographic illustration

ALLOTTED SPAN OF THE RED CELL

LIFE is maintained by the circulation through the body of dead envelopes of hæmoglobin. We can now recognise and name some of the events which lead to the maturation and death of the red blood cell, but there is still little known of the period of useful activity between the death of the erythrocyte and its final destruction by the reticulo-endothelial system. How long do the red blood-cells survive or perhaps more correctly what is their span of life and after-life? The answer is no longer purely of physiological interest for with the greater use of blood transfusion it is very much a problem of practical medicine On the indirect evidence of daily estimations of iron, urobilin and nitrogen excretion or of reticulocyte counts many would reply about thirty days A good deal of evidence, however, points towards a longer survival time and Ashby[1] believed it was nearer two months Her method was to give group O corpuscles to people with group A blood, and by using potent anti-A serum instead of the usual diluting fluid the unagglutinated cells counted (as distinct from the permanently unagglutinable cells) were believed to be donor erythrocytes The method is clumsy and was duly criticised, but it deserves credit as the first attempt at ear-marking the red cells and making possible a direct method of following their fate When Landsteiner described the M and N agglutinogens in human corpuscles it became possible to give patients blood of their own group which could be readily identified It will be remembered that all human red cells contain either the M, N or MN factors and that agglutinins to them are only developed in the rabbit. It is possible, therefore, to transfuse a patient whose blood belongs for example to group AN with donor cells of group AM, which can at a future time be recognised by anti-M sera Landsteiner himself kept an eye on transfused red cells by this means but it is difficult not only to find patients with appropriate blood-groups, but also to follow patients (who are generally very ill) for a sufficient length of time Martinet,[2] who used this technique, was able to follow up only 7 of his 14 suitable patients. In his experiments he sometimes used the hetero-agglutinogens alone and sometimes both hetero- and iso-agglutinogens —that is he combined Ashby's with Landsteiner's technique If the recipient's blood belonged to group AMN and the donor corpuscles were ON the recipient's cells were agglutinated in the test-tube by anti-M serum leaving the ON or donor cells free in the supernatant fluid Martinet makes the point that after repeated injection of a foreign hetero-agglutinogen, hæmolysins may develop in the patient's blood and upset calculations With this and other points such as the age, sex and health of the patient in mind, however, he believed that fresh transfused red cells may survive in the recipient for more than two months This view is supported by H J. N. Dekkers[3] who studied patients of the same blood-group, but with different hetero-agglutinogens He could detect the donor corpuscles in two patients who had received only 50 c cm of blood, thus demonstrating the delicacy of the test Of 35 patients he was able to complete observations in 12 and he found that the transfused red blood-cells were still detectable in from 55 to 75 days These figures represent the survival time of fresh erythrocytes in the circulation of another person and take no account of the time in development from erythroblast to erythrocyte. Fresh transfused blood naturally consists of cells of all ages, but if only 50 c cm of these are youthful then it may be we can tell how long they persist The method is still open to many of the justifiable criticisms of Ashby's observations, but it is a direct way of studying the problem and it involves a minimum of physiological upset These studies are at least links in a chain of evidence which makes a strong case for a much longer span of activity of the normal erythrocyte than is commonly believed We have to accept the fact that there are vitally important dead cells in the body which can continue to function much longer than many living cells

LIVER PUNCTURE

DIAGNOSTIC puncture of the liver was first carried out by Lucatello in 1895, but the procedure has never attracted more than spasmodic interest. Two Scandinavian workers, Iversen and Roholm,[4] have lately revived it and have reported the results of 160 punctures. As opposed to the older methods in which a fine needle was used, they employ a trocar and cannula, which they introduced across the transpleural space under local anæsthesia They thus aspirate a small column of liver tissue which is sectioned and stained in the usual way. They claim that one should not fail to obtain liver tissue for examination in more than 10–15 per cent of cases, and they say that the procedure causes the patient little inconvenience. The risks attached to the operation seem to be slight, though they have not yet had enough experience to be dogmatic on this important point. If this method is really safe, it should open an unexplored avenue in liver pathology. It belongs, however, to a class of special investigations that are only likely to yield results in the right hands, it is emphatically not to be recommended to all and sundry.

Sir BERNARD DOCKER has succeeded Alderman Sir Harold Pink as chairman of the British Hospitals Association

---

[1] *J. Exper med* 1919, 29, 267

[2] *Sang*, 1938, 12 15

[3] *Acta med scand* 1939, 6 587.

[4] Iversen, P., and Roholm, K, *Acta med scand* 1939, 102, 1.

SPECIAL ARTICLES

PRACTICAL PSYCHIATRY IN WAR-TIME

By W. Mayer-Gross, M.D. Heidelb., L.R.C.P.E.
DIRECTOR OF CLINICAL RESEARCH, CRICHTON ROYAL, DUMFRIES

In the last war I had three years' experience in a military psychiatric clearing [illegible] in south-west Germany. The centre was [illegible] contact with the base hospitals from which [illegible] patients, and with the treatment hospitals [illegible] the district to which suitable cases were sent after [illegible] diagnosed. I had no experience with psychiatric [illegible] or immediately behind the front line during [illegible] year of the war when I was a battalion medical officer.

Generally speaking, the [illegible] did not differ very much from what was observed by psychiatrists in other belligerent countries. [illegible] no experience with psychological casualties among civilians, although the towns of the district were [illegible] bombed in 1917 and 1918, and although civilian cases were not excluded from the centre, their number [illegible] have been negligible. But in this war I doubt [illegible] incidence of neuroses will be so small and [illegible] quick as reported from Barcelona by Professor Mira. The psychological background of a civil war in which everyone fanatically takes one side is quite unlike that of a modern mass war between nations in which the individual is less personally involved and perhaps more ready to escape into a neurotic illness.

Psychiatric casualties among soldiers in war time can be divided into three groups: (1) Major psychoses; such cases are dealt with in peace time by psychiatrists. (2) Minor psychoses or "war neuroses"; before the last war these were largely treated by the general practitioner or the neurologist, but their apparent increase in war time led to the calling-in of the psychiatrist as the appropriate expert. (3) Psychological sequelæ of brain injury; this is a relatively small group in peace time and forms part of the neurologist's clientele but in war their greater frequency and often the nature of the clinical picture makes the coöperation of the psychiatrist indispensable.

Major Psychoses

The calling up of a great number of people of the age when the manic-depressive and schizophrenic psychoses become manifest *for the first time* means that these conditions must be expected among soldiers. Careful examination at recruiting centres will exclude some possible candidates. Many difficulties and many pensions can be avoided if the recruiting medical officer refers all doubtful cases to a psychiatrist or a psychiatric clinic. It is even more important that during training all mental peculiarities should be reported to the battalion medical officer, to whom expert advice should be available. Of course, not even a psychiatrist could be expected to exclude all future psychotics. Statistics from many countries have shown that during the last war the incidence of major psychoses did not differ significantly from that found in peace time. If, however, war does not increase the number of psychotic reactions, this does not mean that a schizophrenic, depressive or epileptic illness may not be released by the physical or psychological stress of war in a predisposed individual. A psychiatrist should be available at the beginning of such illnesses to take note of all causative factors [illegible] and to supply complete evidence should the question of a pension subsequently arise. Such cases led to much litigation before the German courts after the last war.

Although the symptoms of the major psychoses seen in war do not differ from the usual types met with in psychiatric practice, such patients tend to come under medical care much earlier than they would have done in civil life, because of the strict discipline and the close association with comrades who show little indulgence for personal peculiarities. The self-denial and subordination required in the services lay open slight anomalies which would have remained undetected for a long time had the patient continued his routine work and lived within the environment of his sympathetic family. The early discovery of these patients makes differential diagnosis more difficult, especially from the more psychogenic reactions. On the other hand, it allows modern treatment to be started at a stage when it yields its best results; such treatment includes continuous narcosis, and hypoglycæmic and convulsive therapy.

There are, however, mental anomalies which may remain undiscovered for a long time in members of the forces under war conditions. Schizophrenics remitted after a first attack have been excellent subordinates, thanks to their loss of spontaneity, and even have shown unselfish recklessness in action, thanks to the shallowness of their emotions. Similarly, many high grade mental defectives make good soldiers for some time on account of their docile subordination and dull gregariousness. Epileptics hiding their affliction have joined the armies of all nations and some have been conspicuous for their bravery through disregard for their own person. Most of these cases pass into the hands of the psychiatrist sooner or later—some not till the end of hostilities, when they claim a pension.

Minor Psychoses—"War Neuroses"

It is doubtful if the apparent increase of minor psychological disturbances in war time is a true one, because of the difficulty in assessing their incidence in peace time. It is however certain that nothing comparable is observed in the standing armies, conscripted or professional, during peace, and that the symptoms of war neuroses are more conspicuous and varied than those of peace time. Already at the end of 1914 (after the German advance in France had come to a standstill) the establishment of special hospitals for neurotic soldiers was considered advisable in parts of Germany relatively close to the field of military operations in the west. These hospitals were intended primarily for treatment, but at first the results were disappointing. This was partly due to the indecisive attitude of the psychiatrists in charge, to whom the mass influx of neurotics with many pseudo-physical symptoms was an entirely new experience; even among famous neurologists and psychiatrists controversies arose about the nature of "shell shock" when the first cases were observed in 1914. Further, there was no adequate selection of the patients admitted to these treatment hospitals. It was impossible to provide the ideal psychotherapeutic atmosphere for the neurotics when in the same ward were some patients suspected of, or actually suffering from, one of the major psychoses, others having fits, the nature of which had to be cleared up before suitable treatment could be instituted, and cases of tremor, paralysis, deafness and so on, who required examination by a specialist in order to exclude an organic illness.

The [illegible] was [illegible] the establishment of psychiatric clearing centres where cases suspected of psychological anomalies were sent from all surgical and medical wards of the district. Diagnostically simple cases were disposed of forthwith without admission to the clearing centre, while complicated cases were admitted for observation and any necessary examination by appropriate specialists. The centres were, as a rule, within a large teaching hospital of one of the universities. This arrangement proved very satisfactory for all concerned. During the later years of the war, when recruiting extended over the whole population, the centres' psychiatric advice was sought in doubtful cases by recruiting M.O.'s, and on the question of responsibility of soldiers before military courts. The Fourth London General Hospital (Maudsley Hospital) and the Royal Victoria Hospital, Netley, were clearing centres in this country.

The bulk of the patients dealt with at the clearing centre were neurotics, and these were the main problem of war psychiatry. The exact number of casualties of this kind has never been accurately assessed in any country. A rough idea of the number needing special psychotherapeutic treatment may be formed from the fact that, in 1917, five out of every hundred hospital beds had to be reserved for such treatment in my district of south-west Germany, which was abundantly equipped for receiving casualties from the big offensive battles in France. Psychiatric clearing centres and hospitals for psychotic soldiers are not included in this figure. During April, May and June, 1917, taken as a sample, the five psychiatric treatment hospitals of the district discharged 957 patients, a figure from which one may appreciate the range of psychiatric work to be done in a long war.

The frequency of war neuroses as shown by such figures confirms the conclusion I reached from the examination and the histories of my patients, that it is not an illness affecting only unstable or psychopathic personalities. Constitutional mental equipment as an ætiological factor may become entirely negligible when psychological stress, exhaustion or sleepnessness are undermining the moral resistance of the combatant. Constant peril of life in physically adverse circumstances, and tension and anxiety over many weeks, can lead to a breakdown in the form of a psychotic reaction, with confusion and dreamlike repetition of the last fearful situation. These severe anxiety states occurring in the front line are easy to understand, as is the rationale of their treatment—rest, recreation and simple suggestive methods. Their prognosis is generally good, and often they are even fit for return to service in the front line, but this of course depends on the original personality and its mental equipment, and on environmental factors which I shall discuss later. The admirable description of these cases by Captain W. Johnson in the "Official History of the War" can scarcely be surpassed.

THE CHRONIC TYPE

A second, more chronic type of war neurosis develops in some cases out of an anxiety state or severe nervous exhaustion, more often its origin is rather intricate, and I propose dealing with its causative factors when discussing the problem of treatment. The symptoms are those of "conversion hysteria." The amazing multiformity of hysteria has been explained by the French school on the grounds that hysteria is a simulation of any kind of disease as reflected in the layman's mind. One certainly was reminded of this theory, debatable as it is, when observing the variety of tremors, tics, mono- and para-plegias, torticollis, ocular palsies, aphonia, mutism, deafness, disturbances of sensitivity, and trophic anomalies of the skin in the neurotics of the last war. All kinds of amnesias were found, somnambulism, enuresis, twilight states, and the never-ending sequence of complaints about pain in the head, the back, the chest, and the bowels, the latter often with vomiting or mucous diarrhœa. Some of these symptoms were hysterical super-constructions on relatively harmless physical ailments, such as paresis of an arm after a simple flesh wound without nerve damage, blinking-tic and ptosis after a superficial lesion of the cornea; or a symptom originally founded on a bodily impairment remained as a hysterical one, although the physical condition was restored, such as deafness or vertigo after otitis media, limp and pain in the hip after acute sciatica. The last examples and many similar border-line cases in general medicine and neurology illustrate the diagnostic difficulties the psychiatrist has to tackle in this field.

The tendency already apparent in this description of the symptoms in the chronic form of war neuroses was underlined when one inquired into the origin of the neurosis. Some of its features, such as mutism, palpitations, tremor, nightmares and sensory losses, were fixed remainders of acute anxiety states, while in many others no anxiety state had preceded them. Fainting attacks, for instance, sometimes first appeared when the impending transport to the front line was announced, a spinal deformity dated from the first carrying of the rifle; epidemics of enuresis on a small scale broke out during the rest time of a detachment at the base. Many neurotics were seen who had never been near the fighting line, and their symptoms were identical with those who broke down under severe strain.

FACTORS IN RECOVERY

The course of the illness and the prospect of recovery were much influenced by the environment. Military fitness was only restored in cases treated immediately behind the front and sent back to their units direct from there. Some German psychiatrists working under such conditions have reported excellent results, similar to those of the British N.Y.D.N. centres in France. The most intractable patients, on the other hand, were those sent to convalescent homes or remote country hospitals in Germany. Hardly any repatriated neurotics ever returned to the fighting line, thus of 435 patients discharged cured from psychiatric treatment hospitals and followed up in September, 1916, only 5 had returned to the forces in action, a few had served in barracks at home, but the great majority had relapsed and proved unfit for any military service.

It is difficult to disprove that this poor result was due to insufficiently "deep" psychological treatment, because of the divergence of opinion even among experts as to what such treatment should be. The result was in fact only unsatisfactory from a military point of view. In nearly all cases the symptoms of the neurosis could be cured, even with the simple methods of which I shall speak, and this cure proved lasting, provided the patient was dismissed from military service and allowed to work outside the danger zone. Thus of the 957 patients discharged from treatment hospitals within three months in 1917, 933 were free from any symptoms on dismissal from the army; only 24 received pensions, and these mostly because of complicating physical ailments. At the time when these figures were compiled the authorities had already agreed that the repatriated neurotic was unfit for any further military service. In one of the treatment hospitals occupation in a munition factory situated close to the hospital had been made part of the routine therapy, and this usually ended with full employment in the factory. In others, a special employment exchange was provided for transferring the patients directly into industries important for the pursuance of the war. Thus relapses through contact with the military milieu were avoided.

Psychiatric treatment hospitals were usually placed out in the country distant from the big cities and from hospital centres for the wounded and physically ill Smaller private mental hospitals, convalescent homes and hotels were taken over by the authorities for this purpose. The most efficient size was up to 200 beds

The exact form of treatment varied considerably in different hospitals Its denominator everywhere was more or less mild suggestion combined with a greater or smaller degree of analysis of the individual case, according to the personality and theoretical inclinations of the physician in charge. A therapeutic atmosphere was of the greatest importance, and this was often obtained with the help of a matron or nurse blessed with an uncommon psychological instinct, while an over-critical or sceptical attitude on the part of the psychiatrist proved detrimental to it In some places the atmosphere could not be maintained especially in the later years of the war without a high-handed discipline which led to much resentment, cures were obtained with a combination of enforced drill and electric shocks, one of the rather precarious achievements in war psychiatry The reputation of some of the hospitals vacillated between miraculous places like Lourdes and correction houses for [illegible] coercion I was never convinced that the results of harsher methods differed from those of continuous persuasion and education under mild pressure, methods which experienced psychiatrists employed during the whole war with apparently equal success In some hospitals a few days' isolation in a dark room, under a mild sedative, was found helpful All methods proved salutary if combined with removal from the dangers of the war

THE PSYCHOLOGY OF WAR NEUROSIS

It is tempting to reproach the psychiatrist for providing in war neurosis just another label for human weakness, lack of social responsibility and malingering But modern warfare forces into soldiership men selected only for their physical fitness There must be many who by their psychological make up and education are totally unsuitable Civilisation has reduced to a minimum the situations in which man has to face and actively resist danger to life How few are really trained to stand up against such a danger! The importance of a sufficiently long training promoting morale, esprit de corps, and a high standard of discipline was the first recommendation of the War Office committee's report on shell shock in 1922 To endure terror may be easier as one of a multitude, but the presence of so many others ready to take one's place relaxes the sense of personal responsibility

The employment of the potential neurotic as a soldier can be defended by figures from authoritative sources communicated during a private discussion on war neurosis in London a few years ago The figures compare the effective service of a sample of 5000 neurotics taken from a ten times greater total with 5000 soldiers who were slightly wounded The latters' effective service up to the time of being wounded excluding the time in hospital, was 33 2 months, against 32 8 months previous service of the neurotics The figures for service overseas were 17 8 against 19 6 months, the neurotics actually being superior Although one has to allow for the fact that the wounded were sent home earlier because of their wounds these figures are surprising They are a warning not to put too much emphasis on the elimination of the potential neurotic Every psychiatrist knows of young men who seemed emotionally unstable but who never became war casualties and were even stabilised under the strain of war service

Cerebral Injuries and their Sequelæ

In considering cerebral war injuries one realises how useful it would be to adopt the American concept of neuropsychiatry This is not the place to discuss the relative competence of neurologist and psychiatrist in traumatic cases, but however competent the neurologist may feel in this field there can be little doubt that even in the most circumscribed lesions after head injury psychological symptoms are present, and from the practical point of view they often play a greater rôle than the focal defect

The frequency of head injuries in modern warfare is well known, and their importance as causes of death or severe disablement can scarcely be overestimated One may expect that the progress of neurosurgery since the last war will save life and reduce invalidism to some extent For the latter purpose, the psychiatrist's cooperation is indispensable, beginning when the surgeon's work is completed, or more exactly during the post-operative treatment By the end of the last war 21 special units for soldiers injured in the head were established in Germany and Austria Most of these were wards or departments of general, neurological, or psychiatric hospitals, a few were separate institutes which existed for years after the war Establishing such a unit depended, of course, as much on the number of specialist physicians available as on the growing number of patients

TYPES OF CASE TREATED

In surveying the different conditions treated in the special unit, cerebral concussion may be mentioned first As in concussion after industrial or road accidents these patients often appear to be neurotics Differential diagnosis between the psychogenic and the organic elements in the clinical picture is more difficult owing to the soldiers' supposed or actual liability to neurotic reactions The tendency of neurologists and psychiatrists alike to overrate neurotic symptoms in post-traumatic patients has lately been demonstrated by Gruenthal He published the cerebral post mortem findings in 17 patients diagnosed as "compensation neurosis," all of whom showed gross cortical damage Psychoses after non penetrating head injury are usually of short duration Their occurrence is increased in war-time, and their sequelæ, such as amnesic states, often last weeks or months The post traumatic pseudo neurotic is not suitable for treatment in association with the ordinary war neurotic, nor is the post-traumatic global or focal defective suitably classified with the usual psychotic

Patients with traumatic epilepsy form another large group to be treated in the unit Observation during and after the last war has shown that the whole variety of epileptic symptoms may occur after non penetrating and penetrating head injury—major fits, absences, twilight states, cataplexy, fluctuations of mood, fugues transient and permanent changes of personality, and intellectual deterioration

In some cases of penetrating wounds of the skull a circumscribed paralysis or a partial sensory loss is the only remaining sign, but adaptation of the brain-injured patient to this relatively small impairment may be strikingly slow and may succeed only under special care and training Other patients seem to adapt themselves unexpectedly quickly, and are [illegible] to wait for the closure of their wounds, [illegible] underrating in an abnormal way the severity of their disturbances. This is a well known symptom of the vulnerable lower part of the frontal lobe and needs experienced psychological handling Local defects from multiple splinters all over the [illegible] are often found in combination with traumatic epilepsy caused by a fragment penetrating the skull, or in combination with a more focal symptom of the alpha-privativum type—asphasia, alexia, agraphia, apraxia, agnosia, and so on.

PRINCIPLES OF TREATMENT

Analysis and treatment of these focal symptoms are the most specialised task of the unit. In peace-time practice, aphasias and the like are sometimes symptoms of a brain tumour; they often arise after vascular cerebral accidents in middle-aged or elderly people. The medical problem is very different when the corresponding part of the brain has been destroyed by a projectile in a young soldier. Although the localisation of the symptoms is the same in principle, the possibility of recovering a lost function and the speed of recovery are much greater, as is the readiness with which the lost function is replaced by another which has remained unaffected. This opens up quite new ways of therapeutic procedure.

Grown-up people with cerebral lesions but undamaged peripheral organs have to be taught how to speak, to read, or to write. They may have to relearn to understand sentences, or to do simple sums or every-day tasks, like dressing and undressing. Some patients show great stupidity or a striking loss of spontaneity which careful examination shows to be the result of focal defect. By substitution or by retraining what remains the general faculties seem to be more or less completely restored, and the whole mental life of the patient appears normal. Patients with injured brains cannot be taught by the methods used in children, but special educational methods have been developed. Under medical direction teachers from schools for backward children or for the deaf and dumb did excellent work of this kind during the last war. Vocational guidance and transfer into a suitable occupation form another important part of the work of the unit. It should be provided with workshops giving training in suitable trades, and other facilities of occupational therapy. Invalids with brain injury need considerable care after their discharge and return to ordinary life, and most of the German units employed social workers for this purpose, they thus centralised all sources of information relating to pensions, and providing expert aftercare. One prominent unit in South Germany was still in existence a few years ago doing aftercare among these ex-service cases, and also making use of its experience in traumatic and other cerebral lesions among the civil population.

In conclusion, I must emphasise how much the work on soldiers with head injuries has contributed to the solution of the problems of neuropsychiatry. Henry Head's classical book on aphasia in this country and the publications of Isserlin, Goldstein and Kleist in Germany are proof that science can be constructive even in the midst of destruction.

Summary

In war-time psychiatry can be of service in the following ways —

(1) Recruiting medical officers and medical officers in charge of detachments in training should be able to consult a psychiatrist in all doubtful cases, in order to eliminate potential psychotics or neurotics at the beginning.

(2) Psychiatric advice should be available in all base hospitals abroad and in all hospitals at home.

(3) For both these purposes psychiatric clearing centres should be established in connexion with each group of hospitals. The duties of these centres should be confined to diagnosis and the proper distribution of patients. In addition to an outpatient clinic, each should have a number of beds for observation of difficult cases.

(4) Acute war neuroses originating in the fighting lines should be treated in treatment stations close behind the front, and not sent home. The work of the N.Y.D.N. centres in France during the last war can still be considered perfect from the point of view of psychiatry today.

(5) Repatriated war neurotics or neurotic casualties occurring at home should proceed via a clearing centre for treatment in special psychiatric hospitals. Their treatment will be facilitated and shortened if, after cure, they are transferred into industrial war-work, and no attempt is made to return them to military duty.

(6) After surgical treatment patients with non-penetrating or penetrating head wounds should be collected in special units for cerebral injuries, in which all psychological and educational facilities should be provided, and which should deal with aftercare.

(7) The importance of these psychiatric services in maintaining the morale of the fighting forces during the war and saving pensions after the war is sufficient reason why the authorities should try to avoid any waste of trained psychiatric specialists.

MEDICINE AND THE LAW

“Guilty but Insane”

In a letter printed on another page Dr. Davie usefully challenges a too loosely worded phrase lately used in these notes in criticism of the verdict “guilty but insane.” Both “guilty” and “insane” are dangerous expressions. A motorist is sometimes described as “guilty” of negligence in some civil proceedings where no criminal liability is suggested at all. “Insanity” means very different things to the alienist and the judge at assizes. The phrase to which Dr. Davie took exception was written merely to submit that a person found guilty of an offence according to law, and therefore criminally responsible for his actions, could not simultaneously be found insane according to law in the sense of being criminally irresponsible; to be criminally irresponsible is to be “not guilty.” The Atkin Committee on Insanity and Crime put this point clearly. The verdict of “guilty but insane” (or the more elaborate “guilty of the act but insane at the time”) it declared to be illogical. An accused cannot be “guilty” of a physical act which is not in itself an offence. The word “guilty” in criminal trials should connote only criminality, the commission of a crime—the very thing which, on the finding as to the accused's state of mind, is negatived. It is a logical principle, said the committee, that where insanity is such as to produce irresponsibility the accused is entitled to a verdict of acquittal of crime. The committee recommended a special verdict in the following form “that the accused did the act (or made the omission) charged, but is not guilty on the ground that he was insane so as not to be responsible according to law at the time.”

The historical origin of the unfortunate verdict “guilty but insane,” alluded to by Dr. Davie, can perhaps bear to be told once more. Before 1800, if an accused person was found insane so as to be irresponsible, he was simply acquitted and no further order was made concerning him. The Criminal

with the law in other countries, but the statutory recognition of the right of unqualified practitioners to practise medicine and surgery can be regarded only as a most undesirable, retrograde step. The act itself makes it appear that the government is particularly desirous of protecting people from inadequately trained medical practitioners Medical students are now compelled, at the end of five years' intensive study at a university, to spend at least a year as resident medical officer at a hospital before they can practise medicine or perform surgical operations; foreign doctors, whatever their previous qualifications, are required in addition either to have passed the fourth, fifth and final degree examinations at the University of Sydney, after attending the prescribed courses of instruction, or to have held a certificate of registration for post-graduate teaching or research work for three years or more Provision is made, however, for the regional registration of foreign doctors in areas not adequately provided with medical services, on condition that the applicant was entitled to registration in his own country, and has satisfied the board that he is capable of providing medical and surgical attention for the inhabitants of the proclaimed area No unregistered person is allowed to hold any appointment either as a medical officer in a hospital or as a medical officer of health, and the penalties for posing as a medical practitioner are severe

Such are the provisions of the act The regulations under the act, however, change the whole aspect of the situation. Advertising by registered persons is severely restricted, but advertising by unregistered persons is allowed with surprising leniency. Any unregistered person may advertise that he is "entitled, qualified, able or willing to practise medicine or surgery in any of its branches," and this with perhaps no training at all He may not in his advertisement include any reference to cancer, tuberculosis, epilepsy, diabetes, or venereal disease, but outside those conditions is a large field in which he can do a great deal of damage. Moreover, he is allowed to "advertise by spoken words, whether directly or through the medium of any apparatus for the reproduction of sound" It seems extraordinary that after requiring medical graduates to undergo an intensive course of study extending over several years, such latitude should be extended to irregular practitioners. Surely it is only encouraging quackery and charlatanism to give legal authorisation to practise to persons possessing no recognised qualifications.

MEDICAL SCHOOL FOR QUEENSLAND

The official opening of the new medical school of the University of Queensland on Aug 11 marks the final achievement in a campaign launched more than twenty-five years ago for the provision of facilities for medical education in this state. The first proposals in 1913 were interrupted by the outbreak of war. In 1922 arrangements were made for anatomical demonstrations to be given to certain of the dental students at the university. From this small beginning there slowly grew the skeleton structure of a medical course, marking the success of the untiring efforts of a small but determined group of men, which culminated in the inauguration of a faculty of medicine in October 1936 The state government decided to provide buildings worthy of the new venture and the new school is a magnificent tribute to their recognition of its scope and importance.

COMMUNITY MEDICAL PLAN AT CANBERRA

The City of Canberra, built expressly for the purpose of accommodating the Commonwealth government and its branches, now boasts a population of over 7000, and has provided a useful experimental area for all sorts of modern ideas and practices. Now Canberra has again established a precedent, this time regarding medico-social problems Although there is already in existence a government controlled compulsory hospital-benefit scheme, the city's medical services have been revolutionised by the introduction of a community plan on a voluntary basis Five resident doctors are conducting the scheme, which will be open to all residents whose salary does not exceed £520 per annum, and their dependants. Contributions are planned on a sliding scale with a maximum of three guineas a year for people earning £520, and six guineas for those with dependants This will cover unlimited medical benefits during illness, a complete medical examination every year, a complete obstetrical service, assistance at operations, and medical attendance at doctors' surgeries or in the homes of contributors between 8 A.M. and 8 P.M. on week days and until 1 P.M. on Saturdays Additional fees may be charged for travelling beyond a four-mile limit and for urgent attention outside specified hours.

IRELAND

(FROM OUR OWN CORRESPONDENT)

A CRITICISM OF MEDICAL CERTIFICATION

THE Bishop of Clonfert, who is chairman of the National Health Insurance Society, has severely criticised the way in which the medical certification of incapability for work is carried out Dr. Dignan was commenting on the actuarial report on the financial working of the new unified society during its first three years. It appeared that the society had not been able to meet in all respects the actuarial requirements of the acts by which national health insurance is governed. The deficiency on the women's side had increased considerably after the union of the societies The expenditure on disablement benefit was much higher in proportion than in Great Britain, and was, in fact, one-third higher than that on sickness benefit, whereas in Great Britain disablement benefit costs only half as much as sickness benefit. The Bishop believes that this contrast does not represent a real difference between the two countries as regards the incidence of sickness and disablement. In his opinion members in Ireland remain too long on both benefits, but particularly on disablement benefit He blames two factors—fraudulent and illegal claims made by members and lax certification by doctors. He made it clear that he was not bringing a charge against the medical profession as a whole, but he asserted that very many doctors were lax. He added that much of the fault of lax certification lay not with the doctors, but in the fact that in Ireland certification was not associated with medical treatment, there being no system of medical treatment under the Insurance Acts in Ireland Dr. Dignan complained also of the small number of medical referees employed, and pointed out that with so small a number long delays were unavoidable Some 34,000 cases are referred by the society each month, and there are only four referees to deal with them.

The current number of the *Journal of the Irish Free State Medical Union*, commenting on the views of the chairman, admits that there is some lax certification by medical certifiers but does not think that it is adequate to account for the heavy expenditure on disablement benefit It adds that, whether the chairman's criticism of medical certifiers is exaggerated or not, it is impossible to meet it so long as careless certification goes on. The medical union has frequently stressed to its members the responsibility entailed in the signing of a certificate. It is the view of the profession, as it is of Dr Dignan, that until there is a system of medical attendance in connexion with national health insurance medical certification will not be satisfactory.

PUBLIC HEALTH

EPIDEMIC PNEUMONIA IN A SETTING OF CLINICAL INFLUENZA

THE SCUNTHORPE OUTBREAK IN 1938

By W. Hartston, M.D. Lond., M.R.C.P., D.P.H.
MEDICAL OFFICER OF HEALTH TO THE BOROUGH OF SCUNTHORPE

Various epidemiologists, notably the late Sir William Hamer and the late E. [illegible] Crookshank, held that epidemic influenza was but an item, a very important item, in a coordinated series of events. In the Ministry of Health's report on the pandemic influenza of 1918–19 attention was directed to severe local outbreaks of pneumonia such as those at Northallerton in 1887 and at Middlesbrough in 1888, which seemed to fit in with Hamer's doctrine and perhaps formed part of what he called the "setting" of an influenza period. An extensive epidemic of pneumonia preceded by an outbreak of influenza was recorded by Smillie, Warnock and White (1938), affecting 100 cases in an institution of 3000 persons and due to a type-I pneumococcus. Even those not prepared to go so far as Hamer would agree that unexpected outbreaks of respiratory epidemic disease always deserve notice. They may prove to be pointers to some important change. For these reasons a brief account of an outbreak in the borough of Scunthorpe should be of interest.

The official returns show a remarkable increase in the numbers of notifications of primary and influenzal pneumonia in England and Wales in the third week of April 1938. In the week ending April 23, 1938, the number of notifications (1218) was half as big again as in the previous week (856) and 20 per cent. above the normal level for the time of year. Notifications continued at this high level (some 1200 weekly) for almost a month. In the week ending May 21, in which there were 1330 notifications, the excess above the normal figure was as much as 46 per cent. There was, however, no coincident or subsequent increase of deaths ascribed to influenza of any significance, but in some districts, particularly Scunthorpe, the position caused anxiety, for during three months in this small isolated industrial town of 42,000 inhabitants there were notified as many cases of primary and influenzal pneumonia as in the rest of the country among a population of 382,000. Table I summarises the general position in 1938 and in each of the previous eleven years 1927–37. In the two months April and May, 1938, 69 cases of pneumonia were notified, and in June 13—an appreciably larger number than in any of the eleven preceding years, although these included three years (1927, 1929, and 1933) of widespread influenza. In each of these years of influenza and in 1931 and 1932, when the national death-rate from influenza was also rather high, the prevalence of pneumonia in the borough lay in the winter months, January to March. There is nothing comparable in this series of years to the outbreak in the spring of 1938.

Table II shows the weekly incidence of notifications in this epidemic and table III the age incidence and sex incidence for the whole outbreak. Some of these rates are based on small numbers. There is an indication of a heavier attack-rate in males than females between the ages of 25 and 60, but, owing to the small absolute numbers, no great weight can be attached to this. There were 10 deaths, giving a case-mortality of 12 per cent.—a moderately severe outbreak. With a duration of thirteen weeks and the population at risk in Scunthorpe 42,000 persons, the equivalent quarterly incidence for the whole population of England and Wales should have been more than 83,000 cases. The expected number for that period was 17,058 and the actual number 13,766.

CLINICAL PICTURE

The "influenza" cases—i.e., without pneumonia—developed chiefly in adults. There was no great

TABLE I—MONTHLY INCIDENCE OF PNEUMONIA NOTIFICATIONS IN THE BOROUGH OF SCUNTHORPE

Year	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total for year	R.G. estimated mid-year population	Deaths from all causes	Deaths from influenza
1927	2	18	20	8	6	7	5	4	—	10	1	2	83	33,030	321	12
1928	1	1	1	3	2	1	1	1	1	2	1	3	18	31,660	238	6
1929	5	6	21	3	4	1	8	5	1	3	5	4	69	31,840	330	44
1930	5	8	6	0	9	8	6	2	2	1	7	6	60	31,[illegible]	327	10
1931	—	15	20	[illegible]	6	11	4	3	3	3	2	7	76	33,[illegible]*	312	24
1932	14	14	6	5	6	3	1	—	2	6	1	3	63	34,19[illegible]	[illegible]	13
1933	8	17	7	6	5	3	2	3	2	3	2	3	66	34,[illegible]	[illegible]	20
1934	1	7	1	4	2	—	—	—	[illegible]	1	—	1	20	[illegible],710	[illegible]	3
1935	3	3	2	0	1	3	—	2	2	3	1	3	21	[illegible],170	310	5
1936	3	5	4	3	4	3	1	1	—	3	2	2	31	[illegible]	[illegible]	10
1937	15	8	3	1	1	1	6	2	3	2	4	10	55	40,[illegible]	344	15
1938	6	4	6	21	48	13	10	2	3	10	4	6	141	42,[illegible]	401	22

* Census figure

TABLE II—WEEKLY INCIDENCE OF NOTIFICATIONS OF "PRIMARY AND INFLUENZAL" PNEUMONIA IN THE SCUNTHORPE OUTBREAK

1938 Week ending	Notifications	1938 Week ending	Notifications
April 2	2	May 28	6
" 9	2	June 4	7
" 16	7	" 11	2
" 23	10	" 18	3
" 30	15	" 25	1
May 7	14		
" 14	7		
" 21	7	Total	83

increase in school absenteeism during the period of the epidemic except among the school teachers The condition appeared to be highly contagious, many households producing multiple cases Occasionally an infected household contained one member or more with pneumonia while others had uncomplicated "influenza" In a maternity home employing 19 nurses and 7 maids, the number of staff affected by "influenza" was 9 nurses and 1 maid, in the following order:—

April 21	3 cases	April 25	2 cases
" 23	1 case	" 28	1 case
" 24	3 cases		

The last case to occur was a relief nurse brought in from outside to nurse sick members of the staff She fell ill with "influenza" on the third day after entering the institution This and other contact cases pointed to an incubation period of three days

The onset was sudden, with shivering, generalised aching, cough, hoarseness, and blood-stained mucous sputum One doctor described these cases as "severe acute bronchitis with blood-stained sputum" Some cases showed loss of taste sensibility, which persisted up to three weeks In the early stages these patients felt ill and looked ill Recovery usually took place after six to fourteen days.

TABLE III—SCUNTHORPE PNEUMONIA-RATES (1938)
(Based on R.G.'s population-figure for 1937)

Age-group	MALES				FEMALES			
	Cases	Deaths	Estimated population	Pneumonia-rate per 10,000	Cases	Deaths	Estimated population	Pneumonia-rate per 10,000
0–5	2	0	1829	10·9	3	1	1797	16·7
5–15	7	0	3985	17·6	7	0	4026	17·4
15–25	10	1	3696	27·1	9	2	3505	25·7
25–40	14	1	5020	27·9	6	0	4792	12·5
40–60	13	3	4592	28·3	6	1	4183	14·3
60	3	0	1434	20·9	3	1	1411	21·3
Total	49	5	20,556	23·8	34	5	19,714	17·2

The "*pneumonia*" *cases* usually showed signs of pulmonary consolidation three to eight days after premonitory "influenzal" symptoms The consolidation was usually lobar, most commonly in one lower lobe, sometimes bilateral, and often accompanied by a pleural effusion of clear fluid Unilateral thoracic pain commonly heralded the onset of consolidation, and blood-stained sputum was common Bacteriological examination of the sputum usually showed pneumococci, sometimes accompanied by *Streptococcus viridans* or *Hæmophilus influenzæ* (Pfeiffer) Temperature was high, about 102° F., but fell gradually to normal by about the eighth day. Most patients were fully recovered in three weeks In fatal cases death usually took place within a week of onset One patient developed pneumonia after nursing a child with uncomplicated "influenza"

TABLE IV—SICKNESS IN SWINE AT SCUNTHORPE (1938)

Week ending Saturday	Pigs ill	Pigs died	Total of pigs in stock	Humans on farm* affected by "flu"
April 9	—	—	1241	—
" 16	1	—	1328	—
" 23	—	—	1301	1
" 30	—	—	1301	1
May 7	3	1	1158	2
" 14	5	2	1021	1
" 21	4	2	1278	1
" 28	2	—	1380	2
June 4	1	1	1263	1
" 11	—	1	1213	—
" 18	1	—	1213	—
" 25	—	—	1213	—

* Farm employed 21 men

EPIDEMIOLOGY

To get some idea of the association between the pneumonia cases and those of uncomplicated influenza I sent questionnaires to all those patients who had been notified as pneumonia, to learn what other members of the household had been affected by influenza From the replies I gathered that of 53 unrelated persons suffering from "primary pneumonia" 10 produced contact families involving 18 cases of "influenza" Returns from four large steel works in the borough employing most of the local adults showed a 25 per cent increase in the weekly sickness-rate during the weeks of pneumonia incidence This, in conjunction with the prevailing medical practitioners' diagnosis of "influenza," is taken as strong evidence of the existence of an influenzal background or "setting" to the pneumonia outbreak.

In view of the absence of serological evidence of influenza virus I thought that we might here be dealing with a virus of lower or different antigenic value I made inquiries of local pig farmers to discover if there had been a concurrent epizootic of swine influenza. Only one farmer could produce accurate records, and these do suggest a coincident pig morbidity (table IV)

VIRUS INFLUENZA

Stuart-Harris et al (1938) give good reasons for distinguishing between influenza due to a virus infection and clinically similar diseases which they suggest should be called "acute upper respiratory catarrh." Elkeles (1934) has shown by experimental work on the influenzas of swine and man that the virus of epidemic human disease is transmissible to pigs and vice versa, although the two viruses are serologically distinct. Also, in each case, but more so in swine, the virus disease is clinically much more severe if *H. influenzæ* accompanies the infecting filtrable virus. Shope (1936) concluded that in human influenza any one of many pathogenic micro-organisms can act in combination with influenza virus to cause a more severe illness than would be produced by virus alone This may explain the state of affairs in Scunthorpe, where many people were ill with an infectious condition clinically diagnosed as "influenza," whereas only a proportion of them developed pneumonia

In general one might associate virus infection with dispersiveness, but the connexion may not be inevitable It therefore seemed desirable to ascertain whether in this outbreak virus could be implicated Sir Patrick Laidlaw and Dr Andrewes kindly undertook the laboratory investigation by virus neutralisation tests against mice I supplied them with ten sera from 2 convalescent cases of influenzal pneumonia, 4 convalescent cases of uncomplicated "influenza," and 4 controls t[illegible] Scunthorpe residents who had no recent history of influenzal infection The antibody content of all sera was found to be at such low levels that no serological evidence was obtained that influenza virus had been involved In other words, this outbreak cannot be regarded as one of epidemic influenza, if, as suggested by Stuart-Harris et al (1938), that name should [illegible] be used when the part played by virus has been demonstrated serologically in convalescents or by the infectivity to ferrets or mice of garglings or nasal washings from acute cases

The cause of this rather striking outbreak remains unsolved The increase of notifications of pneumonia in the country as a whole and some newspaper reports suggest that April–June, 1938, was epidemiologically abnormal Perhaps the late Sir William Hamer would have regarded it as part of the setting of a general influenza We are left to contemplate the possibility of an "influenza" due to a virus which does not produce antibodies to Laidlaw's virus and does not infect ferrets and mice but which in combination with ordinary pathogenic bronchial organisms, produces a high pneumonia morbidity

SUMMARY

A localised outbreak of acute upper respiratory catarrh, serologically distinct from ferret pathogenic virus influenza and with unusually high incidence of severe pneumonia, in the spring of 1938 in the borough of Scunthorpe is described and its epidemiological significance is discussed

My thanks are due to Sir Patrick Laidlaw F R.S , for testing sera and to Prof Major Greenwood for his assistance in the preparation of this paper To the medical practitioners of Scunthorpe I owe thanks for their cooperation in gathering clinical data

REFERENCES

Eccles G (1934) Med Off Inst Pract Gen p 60
Shope, R E (1936) Harvey lecture, U S A
Smillie W G, Warnock G H, and White, H J (1938) Amer J publ Hlth 28, 293
Stuart Harris C H et al (1938) Spec Rep Ser med Res Coun, Lond No 228

Typhoid Carriers

Our Ministry of Health has never separated enteric fevers caused by *Eberthella typhi* from those due to *Salmonella paratyphi*, the localities of the outbreaks of 1938 are not mentioned in the Chief Medical Officer's *report* and we are left to guess the nature of the infection There is reason to believe that the first outbreak mentioned "in a rural area" (p 21) with 20 primary and 13 secondary cases and [illegible] deaths, was true typhoid, as was also the outbreak in Wales. Later in the report appears a special chapter on the enteric group of fevers which is reprinted practically unaltered as memo 225 Med (price 2*d*) Since the typhoids were not specially prevalent in 1938 an explanation for the prominence thus given to them is to be found in the special risks of infection during war conditions and evacuation and (perhaps) the startling cost in compensation paid by Croydon as one result of the outbreak of the previous year The memo gives the impression that the ministry is not happy about the carrier problem, in view of the heavy toll of recent outbreaks traced definitely to this source Until 1927 (S R & O no 1004) the public-health department had no legal power to deal with carriers, for though the Public Health Act of 1875 made it an offence for a person to expose himself "while suffering from any dangerous infectious disorder," the word "suffering" excludes carriers. In 1875 the parasitic nature of infections was not admitted The Public Health Act of 1936 leaves the law on this subject unchanged but the order of 1927 gives powers, obtainable only with difficulty, to prohibit the employment of carriers of enteric fever or dysentery from being employed in catering trades The provision is however hedged about with so many complications as to limit its practical value

Carriers of both eberthella and salmonella can directly infect foodstuffs, they do so frequently and are the cause of all outbreaks of the former spread by foodstuff but not all of the latter The carrier of eberthella has moreover a graver danger, doubtfully possessed by the carrier of salmonella, that of infecting the water-supply Most major epidemics of typhoid are spread either directly by the water supply—witness Malton and Croydon—or indirectly through the medium of water, such as occurred in Bournemouth-Poole Indeed, contamination of drinking water by carriers of eberthella is, and is likely to remain one of the major risks of mankind in all parts of the world Control of carriers—apart from permanent incarceration—would not eliminate this risk, for carriers must pass their evacuations somewhere and it is not always their fault if their evacuations get into the drinking water In the Malton epidemic the spreader was in hospital and his evacuations were emptied into the hospital closet Malton had been asking for this epidemic for forty years for its water supply was known to be exposed to contamination throughout this period The Croydon epidemic might have been prevented by the control of carriers, but also by other safeguards which a legal tribunal held should have been taken Paratyphoid is doubtfully spread by water, though Houston recorded that after the outbreak in Essex, *B paratyphi* was recovered from the river Lea

There should, however, be little danger to a community which is careful of its water supply from typhoid carriers who would submit to a reasonable amount of supervision and carry out precautions against spreading disease far less onerous than those required from consumptives The difficulty is to know the carriers In the memo we are told "It would hardly be practicable to secure the systematic identification, segregation and treatment of chronic carriers" Segregation should not be necessary, and we would not insist upon treatment for we have none which is reliable Identification is another matter Practically all clinical typhoids are treated in institutions which, if they make any claim to be efficient, establish the presence or absence of the carrier state of the patients before discharge So the majority of carriers—of all strains of eberthella—are actually known to a [illegible] somewhere, and it should not be impossible for this knowledge to be collected and made available to the public-health service. No such register would be complete, for cases not clinically recognised would be missed and many carriers are intermittent in their discharge of bacilli Even repeated negative examinations will not always exclude carriers which may subsequently be dangerous, unless they become Widal negative, in which case they cannot be carriers

During 1938 1322 case of enteric fever were notified of which 163 died, giving a fatality-rate of 12·3 The number of notifications was the second lowest and the fatality-rate the second highest in the past ten years. The majority of cases must therefore have been eberthella, for salmonella is much less fatal. In tropical countries where eberthella is frequent salmonella is rare; in Britain, between the war of 1914–18 and 1936 salmonella was much the more frequent infection, but it appears to have receded of late, while eberthella has risen in incidence

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations Each contributor is responsible for the section for a month, his name can be seen later in the half-yearly index

FROM A NORTH-COUNTRY PRACTITIONER

IV

I HAVE received more kindness, consideration and help from consultants than I can ever remember or repay. As a class they look after their own who have met misfortune with a liberality rarely encountered elsewhere. They are undoubtedly the best-paid part of the profession and as a rule they deserve it. Like the rest of us, however, they are well assorted and have attained their relative eminence by varied paths The prescribed routine in the case of physicians and surgeons involves years of relative impecuniosity before the stream of success, evidenced by a rather larger house and car, develops into the full river of affluence with its mansion, the inevitable Rolls and a bit of shootin' and fishin' In the earlier days the faith and goodwill of a G P with a good practice is worthy of cultivation Later this goodwill is of minor importance The patients arrive whether their practitioner wishes it or not. One exasperated G.P said he had decided to fine a surgeon £250—his next five surgical cases—because he had failed to turn out for him in the night At this stage the admonition to beware of the snare of increasing wealth might well be administered, but it would be of no avail Even when the river is in full spate they are haunted by the spectre of insecurity, fewer patients than usual for a week sets them fidgeting; the thought of how few years lie between them and retirement from the hospital staff spurs them on to greater efforts—and fees Meanwhile, for lack of time, academic interests suffer and the contributions which they could fruitfully add to medical literature go unwritten A few, realising the cash value of publication, employ younger men to devil for them and then lend the weight and authority of their names to the end-result Unfortunately there are also those who in spite of toiling by the prescribed route up the Sacred Way never arrive It is not surprising, since their work is often of the highest order, that their lot is gall and wormwood

The specialties often appear to attract a different type. The ranks tend to be swollen by the wide-awake young man who calculates coldly which specialty will produce a maximum income with a minimum of intellectual effort in a minimum time. Thus he will be delivered for ever from the noisome inconveniences of general practice. It is interesting to watch how many of this type achieve their object; interesting too in after years to note that diagnosis is always their weakest point because they never really had time to learn it A hysterectomy for instance covers a multitude of sins and saves many an exact diagnosis but it never cures a sacro-iliac strain In addition there are the consultoids—the quacks who once took a medical degree

* * *

A meeting of practitioners once discussed errors—in diagnosis, treatment, handling of patients, and the other multifarious omissions and commissions which doctors perpetrate. At the end one Scotsman, hitherto silent, explained that he had not as yet been in practice long enough to make any! One felt like the man who remarked when attending a funeral, "The worst of this sort of thing is that there is no reciprocity about it" If the G P. does not bury his mistakes he has to live with them as a constant reproach, within or without his practice. With the consultant this is not so. Unfortunately when the consultant's error becomes manifest even to the patient the latter will not go back to the same man whose appreciation of error would make him doubly attentive. I have seen many diagnoses given with assurance which time has failed to substantiate I have been laughed out of court on making a diagnosis of appendicitis because appendicectomy had previously been performed by a reputable surgeon years before When laparotomy was performed half the appendix was still there I have seen many a gloomy prognosis falsified and many a cheerful one rapidly followed by death Much is forgiven a surgeon that would be fatal for a G P He who was called to see a gangrene of the foot wrapped up in a flannel legging and took firm hold of it under the impression that it was a hot-water bottle, was readily forgiven what in a practitioner would have been looked upon as careless and inconsiderate But whether the consultant is good, bad, or indifferent, right or wrong, consultation is always followed by a period of peace for the G.P., so highly does the public rate having had a specialist. Neighbours and friends who were not present when the great man gave his views may not look on things in quite the same light The consultant emerges from the illustrious void and goes back to it. As one Lancastrian writer put it, "I do not know how the great man from Harley Street would have taken it, had he known that his visit was an intimation acted on by the entire community to abandon all hope."

On many occasions the help and advice of consultants have been invaluable Often of course one knows that the result of the interview will be Mag Ox in one case, and in another the latest product of some foreign drug firm, as evidence of his being thoroughly up-to-date Actually the consultant body is just as attached to its ruts as any other and often more inclined to see everything through the lens of its own particular interest. A patient—the big business type—suddenly decided that he felt really ill and something must be done about it immediately He made appointments to see four consultants that afternoon a physician known for dealing with abdominal conditions, a neurologist, a purely general physician, and an eminent surgeon I received letters from them simultaneously next morning None of them could find anything grossly wrong but the first said the liver was not functioning properly the neurologist that the whole nervous system was keyed up and a month's holiday was essential, the third suggested a tonic, and the surgeon thought there was sufficient indication for a laparotomy Then he suddenly remembered a physician who had previously examined him for life insurance To this physician he explained that he felt really ill but that he wished to take out a life policy for £10,000 So he was examined from top to toe and was told that much as he disliked accepting him he could find no good reason for rejecting him He forthwith took out his policy and felt a great deal better Another patient used to instruct his family never to see a consultant without their own doctor being present Although it would cost more he argued that they would be saved from the consultant's pet foibles, they would get better attention, and they might be saved a tour of investigation In this he was without doubt right Some consultants look upon the presence of a G P when they already have a patient and his relations to cope with, as an added burden Others openly welcome him not only as an indication that the patient is a person of substance (this is more often true than not) but also because he can give useful information about the patient, and occasionally about his exiguous circumstances which are valuable in planning appropriate treatment

• • •

In addition to a knowledge of a specialty a really good consultant requires a breadth of view which will overcome and outweigh the myopia which his specialism entails I think it was L A G Stong who wrote "A physician needs so much more than a knowledge of disease His authority must extend and derive from beyond the surgery That was where so many failed They were negligible as men Their interests were narrow their minds prone to suspicion, their noses kept too close to the grindstone of general or special practice to give them a wider vision It must be supposed they were forced to specialise so young that they never got any real education at all" The noses of general practitioners are kept so close to the grindstone that perhaps they never will have a chance. Consultants should have more time and leisure and be able to fill it to advantage If every consultant had some first hand knowledge of general practice, his field of vision would be increased and the blind spot less in evidence

Such a course taken early, would have incalculable effects It would obviate the hospital resident who makes it so clear that though he has never seen or heard of you before he has no faith whatever in your diagnosis and very little use for any information you may offer It would give first hand experience of the utter impossibility of treating certain cases in the surroundings in which they are found It would enable him to take a worm's-eye view of a situation which later he will only be able to watch from Olympian heights It might even teach him something of the art of handling patients, it is so often said that a practitioner starts by knowing a good deal of medicine and nothing about patients, and ends by knowing no medicine and an infinite amount about patients It would show him that a good deal of spadework has been done before the patient reaches his hands Even in acute abdominal conditions and obvious cases of such conditions as diabetes, the horse has had to be led very carefully to the water The necessity for an operation or of beginning a life on insulin requires a deal of explanation and persuasion Many shrink from the thought of a hypodermic injection even with the newest and sharpest of needles So utterly deficient are some consultants in the art of persuasion that they could never have earned a living in general practice Such an one was the surgeon of whom a patient said, "I hate to see him at the end of the bed, he has no idea what to say and nor have I"

• • •

If a short period in practice were an integral part of the medical course some hold that there would be fewer G P.s than ever, on the grounds that it is only economic circumstances and the desire to get married which fill the ranks. Every practitioner is the better for having had good hospital experience but resident hospital posts give a man no idea of what is in store Hospital residence however should not be too prolonged Otherwise when the break comes and a man ceases to be waited on hand and foot with regular hours and unlimited medical supplies, it is very hard to be alone, tied, and practising those petty parsimonies which general practice entails. Even more difficult to eradicate is a tendency to look on patients as obedient cases gratefully accepting such treatment as is vouchsafed Private practice and private patients are a very different kettle of fish

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 2, 1939

Notifications—The following cases of infectious disease were notified during the week Smallpox, 0, scarlet fever, 1355, whooping-cough, 1214, diphtheria, 1010, enteric fever, 13 measles, 2206, pneumonia (primary or influenzal), 101, puerperal pyrexia, 157, cerebrospinal fever, 27, poliomyelitis, 17, polio-encephalitis, 1; encephalitis lethargica, 1, dysentery, 50, ophthalmia neonatorum, 75 No case of cholera plague or typhus fever was notified during the week

Deaths—In 126 great towns, including London, there were no deaths from smallpox or measles, 1 (0) from enteric fever, 1 (0) from scarlet fever, 5 (2) from whooping-cough, 19 (0) from diphtheria, 30 (1) from diarrhoea and enteritis under 2 years, and 23 (3) from influenza The figures in parentheses are those for London itself

Southampton reported the only death from typhoid Fatal cases of diphtheria were scattered over 15 great towns Liverpool Manchester Bristol and Walsall each reporting 2 Birmingham had 11 deaths from diarrhoea Newcastle on Tyne 3

MARRIAGE OF THE BLIND —At a meeting of Leicester city council a few weeks ago a councillor drew attention to a rule of the Leicester Blind Institution which discouraged marriages between blind people It seems that the institution does discourage blind couples from marrying except on a medical certificate that there will be no children and as a consequence four or five men or women have been sterilised at their own request. It is thought undesirable that where both parties are blind there should be children not merely because of the possible transmission of blindness but because two blind parents will find difficulty in looking after children satisfactorily In the first place the authorities of the institution made a rule that if two blind people married they would cease to employ them A couple then produced medical evidence that the woman could not have a child and it was agreed to make an exception in their case This created a precedent There is no mention of sterilisation in the rule

LETTERS TO THE EDITOR

MEDICAL SOCIETIES ON ACTIVE SERVICE

SIR,—In times of stationary warfare, and particularly in the winter months, it becomes necessary to invent schemes for the counteraction of boredom and the maintenance of interest and efficiency. For the medical services there can be nothing better for this purpose than the medical society, with all its opportunities for exchange of "shop" and useful information, and with as regular and varied a programme as circumstances may permit. Medical meetings, whether under the auspices of a local society or not, played their part in the last war and are sure to be revived. Such societies may be small or large; they may be based on an army or a corps, or have their centre at a base, or in hospitals and training areas at home. They can combine a social with a scientific purpose and their meetings should not become too formal. In the case of the Expeditionary Force they should be able to draw upon consultants or medical or surgical specialists attached to base hospitals and casualty clearing stations for papers on clinical topics. Talks among ambulance and regimental officers on aspects of their work can be equally valuable if less clinical. Pathologists and medical officers connected with sanitation and the many-sided problems of venereal disease should also have their contributions to make. Directors or assistant directors of medical services may profitably be invited to give instruction and advice on administrative subjects and to recount experience of other campaigns to units mainly composed of civilian doctors

The educational approach to the venereal-disease problem, as opposed to the mere provision of preventive packets, and how it may best be organised for different types of unit and different ranks inevitably requires free discussion in our younger modern army. The practical and theoretical implications of the surgical methods advocated by Trueta, the known and possible contributions, and also the dangers, of sulphonamide treatment in sepsis, pneumonia, meningococcal meningitis and gonorrhœa; the management of shock and chest-wounds; the old P.U O. problem—all these should provide food for discussion even before the advent of battle. Few problems call for more careful consideration than that of D.A.H. or soldiers' heart Many physicians, in retrospect, must feel convinced that there was a wholly unnecessary sick-wastage from this cause in the last war and that physical and infective factors (as opposed to emotional factors) were far too extensively blamed, even by cardiologists of distinction who had not seen cases in their early stages and in their causal environments. A large proportion of all cases could have been reclaimed by simple psychotherapy and physiotherapy, without hospitalisation or invaliding and with a great saving of expense to the country. The soldier is a simple and sensible fellow for the most part, but like the civilian he can either be made into an invalid by a wrong treatment or label, or cured of many of his functional disorders by straightforward explanation and reassurance and short respites from bad conditions Reminders of the advantages of re-educational camps, instead of hospitals, for all the minor neuroses (a late lesson of the last war) cannot be brought too soon to the notice of the whole medical service.

A lending library at the base and a system of circulation of important journals, manuals and reprints should not be beyond the dreams and the scope of the best organised army medical corps in the world. The keeping of medical notebooks and diaries should everywhere be encouraged Many of us look back upon our medical and surgical experience of the last war as one of the most vivid and instructive experiences of a life-time The good comradeship, the complete absence of the competitive evil, the living and working at close quarters of friendly teams, the direction of unanimous effort to the one object of doing the best possible both for the service and for the individual sick or wounded soldier, sailor or airman—all these provide an atmosphere which might with advantage, but does not yet, exist in our less united and less whole-hearted civilian organisations.

With the addition of research teams and base or army schools or instructional courses, the welding and evolution of the military medical machine in time becomes complete and lends its full support and inspiration to the common cause. The particular functions of the medical society are to bind and to leaven the official work, to facilitate exchange of views, and to maintain enthusiasm and the spirit of inquiry essential to all good medical service We are all confronted with a new phase of postgraduate education and Osler's happy reflections on "The Educational Value of the Medical Society" are as worthy of attention in war-time as in times of peace

I am, Sir, yours faithfully,

Cambridge JOHN A. RYLE

STORED BLOOD

SIR,—The annotation on stored blood in your issue of Dec. 9 attributes to us opinions which we never expressed and then proceeds to bludgeon them. In our paper on changes in stored blood the week before we made it plain that we wished to indicate the limits within which blood stored in a particular way retained its normal features. Discussing the cellular changes, we said that there slowly came a time when in every particular examined there were gross disturbances in form and function and we inferred that this time was the limit of usefulness of the red blood-cell. We also drew attention to fallacies in the common practice of judging the blood solely on the appearance of the supernatant fluid. This is a fair summary of what we thought was a simple and intelligible record of work. The impression left with your annotator, however, was that we "hold the view that stored blood is likely to be valueless" and that our evidence "does not condemn a well-established practice" In fact, we neither made nor tried to convey a general statement about the value of stored blood or the practice of blood-transfusion.

To say that the increase of fragility of the red cells to hypotonic saline is no real evidence of cell damage is beside the point. A fragile cell may not be "damaged" in so far as its cell membrane is still intact, but if, as we have shown after three weeks of storage, its integrity is shattered by slight trauma it is unlikely to survive both the agitation and heating before transfusion and the strain imposed during the operation Your annotation dismissed our diminishing erythrocyte-counts with the reminder that a thick film of cells adheres to the walls of the bottle and this may account for the fall But our counts were performed on blood and not on the supernatant fluid. Each bottle was prepared as for transfusion and an even suspension of cells obtained. It is of course impossible to remove, without violence, all the cells adhering to the glass just as it is impossible to remove the numerous erythrocytes bound up in the clots of blood a month old. But as these cells are not available for transfusion mention of them is merely a point in favour of our figures. Finally your annotator informs us that the appearances in dried films may be artifactual. This is so well known that we took special pains to control our films; the scant artifacts did not deter us, however (and they do not deter most clinical pathologists), from noting rising numbers of abnormal forms in the blood. The changes described are clearly not explicable as artifacts and moreover we showed that they behaved differently from normal erythrocytes.

May we emphasise again the utter confusion which exists in medical opinion as to the time limit of usefulness of stored blood. Your annotation mentions an instance in which a worker with experience of 400 transfusions thought that fourteen days was much too long. Your annotator is impressed by the growing record of clinical successes and says that there is a large body of clinical evidence that blood stored for a month or more can be used successfully. We have given our reasons for the belief that three weeks is the time limit for the intact red blood cell as an oxygen-carrying unit. And until there is carefully controlled evidence that *erythrocytes* older than a month carry on in the body their specific function we shall hesitate to recommend for this purpose blood stored for longer than three weeks. The question is not merely academic and we feel that vague clinical impressions are not the best ground on which to decide a problem when human life may be at stake.

We are, Sir, yours faithfully,

A. MACDONALD,
G. M. STEPHEN.

Aberdeen.

DETOXICATION OF SULPHONAMIDES

SIR,—The recent memorandum of the War Office on the chemotherapy of war-wound infections contains a long list of possible forms of intolerance to sulphonamide drugs, together with suggested means of overcoming or mitigating them. If, in civil practice these side effects are accepted as largely inevitable, unfortunate but seldom affecting prognosis they may assume a graver significance in patients already suffering from the shock of war wounds and of subsequent general anæsthesia and surgical operation. A correspondingly greater importance may therefore be attached to methods of making these drugs better tolerated.

In the official list no mention is made of nicotinic acid. Nicotinic acid is specific in the treatment of pellagra, and there are a surprising number of points of similarity between the symptoms of pellagra and those of sulphonamide intolerance. Both may show increased porphyrin in the urine, photosensitisation of the skin, a relative increase in lymphocytes, nausea and vomiting, and mild mental symptoms (confusion, dizziness, loss of memory, depression, headache and insomnia). McGinty[1] and his colleagues, noting some of these points of resemblance, found that in patients undergoing treatment with sulphonamides nicotinic acid brought about a diminished excretion of porphyrin along with the relief of various symptoms of intolerance, notably mental depression. Following the publication of this finding Pepper et al.[2] tried nicotinic acid in a few pneumonia patients undergoing treatment with M & B 693 and reported encouraging results. These authors did not specify for which particular forms of intolerance nicotinic acid was prescribed, but Josephson and Klewan[3] reported that delayed resolution of lung consolidation in pneumonia patients treated with sulphanilamide cleared rapidly under the administration of nicotinic acid.

Liver extract contains a considerable percentage of nicotinic acid, and it is of interest to note that French workers have reported that its administration doubles the minimum lethal dose of M & B 693 Soluble in experimental animals, and that clinically liver extracts are extremely useful in reducing the toxicity of sulphonamides.

In other conditions in which porphyrinuria may be found nicotinic acid has been given with some success. In radiation sickness it often brings about prompt cessation of nausea, vomiting, anorexia and headache. In syphilitic patients undergoing arsenotherapy porphyrinuria is not uncommon, and liver extract has been prescribed for this. Scolari[4] reported that nicotinic acid was less effective than liver extract in producing diminished excretion of porphyrin in such cases.

How nicotinic acid acts is uncertain. It appears to be necessary for the normal functioning of the gastro-intestinal tract, and larger quantities may be required in pyrexial and infective conditions. In pellagra its precise action has not been determined, and in sulphonamide intolerance response to nicotinic acid does not seem to have any direct relationship to changes in porphyrin excretion. It is reported that in radiation sickness, even when the excretion of porphyrin seems to be within normal limits, nicotinic acid is effective in overcoming vomiting. It is of interest to note that an increase of porphyrin in the urine is found in animals dosed with sulphanilamide, but not in those given corresponding doses of M & B 693.

As sulphanilamide and M & B 693 are likely to be given to soldiers suffering from infected war wounds or pneumonia, in a dosage certain in many cases to produce intolerance, it would be well if a large-scale investigation were speedily made of the possible value of nicotinic acid as a detoxicating agent. In moderate dosage nicotinic acid is relatively innocuous, although flushing of the skin, parasthesiæ and perspiration may follow administration of large doses. Individual doses of 50 to 100 mg or more may safely be given by mouth four or five times a day and, if need be, the drug may be administered intravenously in saline in smaller dosage.

I am, Sir, yours faithfully,

Brentwood, Essex. ROBERT FORGAN.

NATURAL HISTORY OF PYLORIC ULCER

SIR,—It was refreshing to read your leading article of Sept. 30 drawing attention to the primary importance of emotional factors in the genesis and therefore in the treatment of peptic ulcer. The dictum common in one's student days that when stocks fall on Wall Street the ulcer rate rises was in danger of being obscured by the modern methods of treating the end results with alkaline powder, diet, injections and surgical operations. But the history of three recent perforations which have come my way goes to show that it is not wise to confine one's interest to one factor only, even the emotional; these cases show definitely the interplay of several.

CASE 1.—A man of 42. Chronic indigestion for 8 years, typical hunger pains relieved by eating or alkaline powder. Had not been feeling up to the mark for a few weeks. On Sept. [illegible] when [illegible] did not feel disturbed by the air-raid warning which followed immediately on the declaration of war, he was seized with violent epigastric and chest pain and when seen had obviously perforated. A small perforation of a gastric ulcer was found at operation and his recovery was uneventful. There seems little doubt that the exciting factor in this case was emotional.

---

[1] J. med. Ass. Georgia, 1939, 28, 14.
[2] Amer. J. med. Sci. July, 1939, p. 22.
[3] Nature, 1939, 143, 725.
[4] Giorn. ital. derm. sif. Milano, 1937, 80, 185.

CASE 2.—A man, aged 49, with a history of long-standing indigestion and hæmatemesis 10 years previously, had been employed since the start of the war on very heavy work in making sandbags. He had felt tired out every evening and one day when in the act of lifting a heavy sandbag he perforated. Operation was performed soon afterwards and he made an uninterrupted recovery. Here overexertion must have been the exciting factor, for he was getting better wages and was less worried over money matters than he had been for some time.

CASE 3.—A man of 55. Indigestion for 21 years (since the last war), kept at bay by careful dieting. He was of an anxious nature and work had been precarious for years, while a young family made existence difficult. Since Sept. 3 he had been on full-time war-work in aeroplane manufacture ; though his financial anxiety was materially lessened thereby the distance from home made regular meals impossible and home cooking out of the question. He perforated at work but delayed sending for medical attention and died soon after operation. Here the dietary factor, in spite of the lessening of anxiety and worry, led to disaster.

So in three perforations we have evidence that emotion, fatigue, and relaxation of dietary restrictions may each precipitate perforation.

Some explanation of the psychosomatic connexion between emotional causes and ulcer is offered by another case, a gastric ulcer of years' standing which had a relapse since the opening day of the war when she was in a bus as the air-raid warning went. Panic prevailed and immediately, as she said, her stomach " turned over " in fear ; from that moment her gastric pain returned and vomiting recommenced after being absent for about three years. One wonders if it is the people who " feel their emotions in their stomach " who are prone to ulcer, and if it is a local sympathetic nervous effect which predisposes the mucous membrane to ulceration, perhaps by inducing ischæmia, loss of tone or the like.

I am, Sir, yours faithfully,

London, N.7. W. LEES TEMPLETON.

HEREDITARY FAMILIAL PURPURA SIMPLEX

SIR,—I must thank Dr Herbert Levy for his letter in your issue of Dec. 9 and for drawing attention to Jurgens's paper. But Jurgens did not describe cases of the same type as mine. There are fundamental differences. He found in three families in central Germany 10 cases (mostly females) who showed skin hæmorrhages without alteration in the number of platelets or in bleeding-time. But he wrote, " The leading symptom for all is skin hæmorrhages which appear spontaneously on pressure (*spontan auf Druck*) or after slight pinches " My paper was based on 25 personally investigated patients with familial spontaneous ecchymoses and at least 21 did not show any bruise after moderate pressure or blows In fact, they often stated that they were resistant to bruises from severe blows Even the few who bruised easily did not do so to any great extent.

Jurgens found the " pinch-phenomenon " and the Rumpel-Leede test strongly positive in all his cases. Of my cases there was no bruising on pinching in 24 and the capillary-resistance test was negative in 9. The 1 patient who bruised on pinching had a negative capillary-resistance test Jurgens described the very early appearance " nearly always " of other bleeding tendencies, although his description of these is unconvincing, but in my patients such tendencies were infrequent. He claimed " far-reaching agreement " between the clinical picture of his cases and that of constitutional thrombopathy, and he classified both conditions among the hereditary thrombopathies (pseudohæmophilia), from all of which my cases differed profoundly My patients showed purpura simplex, those of Jurgens did not. (Incidentally, while appreciating Dr. Levy's objection to the word pseudohæmophilia, I hope I am meantime entitled to use this well-established term.) I have recently seen more families of hereditary purpura simplex which further support my statements. The condition is common, I feel sure

In conclusion, in my paper I mentioned the work of Dohrn quoted by Pratt. I have since traced Dohrn's paper (*Arch. Gynak.* 1873, 6, 486). He did not describe hereditary familial purpura simplex.

I am, Sir, yours faithfully,

St Stephen's Hospital, S W.10. ELI DAVIS.

" GUILTY BUT INSANE "

SIR,—Under this heading on p. 1136 of your issue of Nov. 25 is a phrase to which I must take exception. " If a man is insane, he cannot form the conscious intention to commit murder, if he is guilty of murder, he cannot be insane " This is neither true nor is it the law of England Were the view accepted that all insane persons were irresponsible for all their acts, it would deprive those persons of such rights and responsibilities as the law still affords them—e g, power to make a will The McNaghten criterion is of responsibility where insanity is alleged in defence of a criminal act, for the law does not hold that all insane persons are necessarily irresponsible. I agree that the verdict " guilty but insane " is ridiculous, but you are aware that it only came into being in 1883 because Queen Victoria could not be got to understand why Maclean should have been found " not guilty on the grounds of insanity " when indeed he had fired the pistol at her. Her Majesty had never grasped the meaning of the maxim *actus non facit reum nisi mens sit rea,* that an outward act alone cannot constitute a crime unless there is an accompanying criminal intention

I am, Sir, yours faithfully,

T M DAVIE,

Medical Superintendent, East Riding Mental Hospital

EFFECTS OF DRUGS IN MYOTONIA

SIR,—In their paper in THE LANCET of Oct 21 Dr. Guttman and Dr. Stokes mention a case to which they gave the diagnosis myotonia congenita. By their kindness I had examined this case and they stated: " . . . these features have been interpreted by Maas (1937) as evidence of dystrophia myotonica, but the interpretation must remain equivocal."

I examined this patient in 1936, 1937 and 1938 and observed slight wasting of temporal muscles and somewhat thin cheeks. The left sternomastoid was definitely wasted, supinator and triceps reflexes were not obtained, dorsiflexion of the feet was weak. Dr. L D. Bailey kindly carried out an electrical examination, and mentioned in his report: " There is obvious wasting of the left sternomastoid and ? temporal muscles " The patient had no sisters and only one brother of 24 in 1936 The sides of the brother's forehead were bald, the left sternomastoid was not as well developed as the right one The right abductor pollicis was probably slightly wasted, strength in cheeks was diminished

His mother was a woman of 50 Her left temporal muscle was definitely wasted, and the right one was suspicious of wasting The orbiculares oculi seemed to be somewhat weak and she was unable to blow out her cheeks The sternomastoids as well as other neck muscles and all forearm muscles were poorly developed There was slight but definite wasting in the lateral part of both thenar eminences, as confirmed by Dr Bailey Five of her brothers and sisters had died One was abroad Five of her brothers and sisters, living in this country, were examined and all showed symptoms suspicious of dystrophia *myotonica*

I also examined the mother, 85 years of age Her left thenar eminence was definitely wasted, the right one was somewhat flat

From these examinations of the patient and his relatives I think the diagnosis of dystrophia myotonia is justifiable In 1939, however, Dr A S Paterson and I published a paper on the identity of myotonia congenita (Thomsen's disease), dystrophia myotonica (myotonia atrophica) and paramyotonia (*Brain*, 1939, 62, 198) We maintained that a distinction between these three affections was not justified, and we suggested for all three the common name myotonia congenita or Thomsen's disease In this sense I agree with the diagnosis myotonia congenita for the case in which Guttman and Stokes observed good results with quinine therapy

I am, Sir, yours faithfully,

London, N W 6 OTTO MAAS

JUNIOR CONSULTANTS IN THE E M S

SIR,—I should like strongly to protest at the treatment the junior consultants have received at the hands of the Ministry of Health I have not done so before because I had hopes that this would be corrected, but as the ministry has taken about three weeks to reply to my numerous letters I have only now learnt that any more considerate attitude on their part is a forlorn hope

There are many others in the same boat and my own case is, I think, typical I have the M D, the M R C P and the D P M (all of London), I have spent five or six years doing hospital work in psychiatry and during the last five years have practised it as a consultant I am physician in charge of a department at one hospital of nearly 300 beds assistant physician to another and chief assistant to a teaching hospital Having written some fifteen papers and two books on my own subject and contributed to others I can claim to be a specialist in it This would appear to be the opinion of the Ministry of Health, which sent me a form under the E M S as a "Psychiatrist," but at a salary of £550 per annum At that time, when everyone was expecting an air raid on London at any moment, I abandoned my practice and went as soon as I was called, but I pointed out to the ministry that I had been appointed as a specialist—i e, a psychiatrist—but was being offered only the remuneration of a general practitioner When a consultant leaves his practice he cannot leave it in some colleague's hands but must abandon it to its fate whereas the general practitioner goes on drawing something from his practice and does not need the extra remuneration, nor has he the terrific rents of the consultant Since the outbreak of war I have been in constant communication with the ministry (or as constant as one can be with someone who answers a month after!) I have had no satisfaction except that "the Minister's advisers see no reason to alter my status" My senior chief the adviser himself, and everyone except the ministry have stated that as a consultant I should have the rank and remuneration of a specialist, but nothing appears to move the ministry In despair I tried the B.M.A, but although sympathetic the B.M A took nearly as long to answer my letters and was no more successful with the ministry than I was. It seems to me that the B M A. has, like Frankenstein, created a monster which will destroy it and unhappily also those who had hoped it would protect them

Meanwhile, my rentals and insurance are more than I am earning under the E.M S and although the landlords are taking part payment on account I fear that some day I shall have to meet the appalling debt I am being forced to accumulate

I am, Sir, yours faithfully,

Harley Street, W 1 A PSYCHIATRIST

DOSAGE IN RADON THERAPY

SIR,—There is an increasing use of radon in radium therapy owing to present conditions The following data may be of use to those who have not hitherto been accustomed to adjust the length of exposure to the declining strength of a source This can be done as shown in table 1, the assumption being that one starts with just as much radon (millicuries) as hitherto one used radium (milligrammes) The "time to half value" for radon is taken as 3 86 days

TABLE I

Period of treatment with radium (days)	Period of treatment with radon (days)
1	1·10
2	2·40
3	4·32
4	7·08
5	12·80
5·56	Infinite (lifetime)

For those who do not wish to prolong the period of treatment the alternative is to start with a larger number of millicuries of radon than one hitherto used milligrammes of radium The data are given in table 2, the second column showing how the milligrammes must be multiplied in order to give the number of millicuries having the dosage equivalence for any specified period of exposure With a source declining in strength, the average strength over any spell of time can be calculated Some may find it a useful quantity Values have been calculated and tabulated in the third column of table 2.

TABLE 2

Period of treatment (days)	Mg to be multiplied by	Average strength (percentage of original strength)
1	1·09	91·5
2	1·19	84·0
3	1·30	77·4
4	1·40	71·3
5	1·52	66·0
6	1·64	61·1
7	1·76	57·0
8	1·89	53·0
9	2·02	49·5
10	2·16	46·3

The reference throughout it has been to equivalence in physical doses It is well known that the biological effect of a strong source acting for a short time is not necessarily the same as the effect of a weak one acting for a long time

I am, Sir, yours faithfully,

Barnato Joel Laboratories,
Middlesex Hospital, W 1 SIDNEY RUSS

A PLAN FOR BRITISH HOSPITALS

LORD HORDER SUMS UP

SIR,—I accept your invitation to sum up this correspondence with some trepidation. It were less difficult to act the free lance and state my own views, but though these will inevitably become implicit, I will do my best not to obtrude them. Out of the welter of statements, suggestions, invective and revelation I will try to trace some consensus of opinion which may prove useful when, once again, we return to constructive, as against destructive, efforts.

War-mindedness stirs us to our depths and we take stock of ourselves both in the personal sphere and in the sphere of social, national and international service. Only in this sense does there seem to be any special reason at this time for intensive thinking upon this vital matter of hospitals or any call for fresh action at the moment. In one regard, indeed, as Sir Frederick Menzies reminds us, the time for considering this matter is inopportune, since a considerable part of the profession finds itself in a state of irritation, whether reasonably or not, arising out of the E.M.S. arrangements. There are no new factors and there are no new needs, they have all of them been before us for quite a long time; for years the demand for some rationalisation of existing hospital services had become insistent, careful assessment of the position and statesmanlike suggestions and plans for evolution (rather than revolution) were in the air, the Sankey commission's report is nearly three years old and the Dawson report was presented as long ago as May, 1920.

The one thing lacking has been the will to action, and if a state of war can make us dynamic in this field then we will welcome this good, like some others that may arise elsewhere, out of much evil. But it is surely better, as several of your correspondents suggest, that war should act as an accelerator to a plan considered during peace-time than as midwife (the metaphor is infectious!) to an emergency scheme conceived for purely opportune purposes. These correspondents dissent, and I think reasonably, from your special commissioner, when he bases his plan upon the eventuality of perpetually recurring war, with "intense aerial bombardment of our cities" making them untenable for hospitals and sick people. I was a little surprised that another criticism was not advanced against your S.C. in this connexion—that he assumes the emergency hospital scheme to have proved itself a success, whereas it has not yet been, and may never be, thoroughly tested. So that, in either case, your S.C.'s enthusiasm for the E.H.S. as a model for hospital planning seems premature. (If Dr. Trueta's experience in Spain and his general thesis in regard to the treatment of air-raid casualties are to be credited, the E.H.S. is not very likely to be a great success.)

But it is perhaps more pertinent to note—as one or two of your correspondents have done—that the purpose of the E.H.S. is quite different from the purpose of a peace-time H.S. The E.H.S. is designed to meet the sudden occurrence of an exceptional number of acute casualties, the great majority of which are inpatients, suffering from injury and shock. In times of peace the purpose of a H.S. is to cater for a steady flow of patients suffering from a great variety of illnesses, more subacute and chronic than acute, and more inpatient than outpatient. The number of investigations and ancillary (special) treatments required for the latter group is much greater than for the former and their nature is more variable. Altogether, therefore, the critics of your S.C. who express their lack of conviction as to the E.H.S. being a sound basis for peace-time hospital planning seem justified.

What is clearly of interest, however, is that we see in the E.H.S. what happens when other people take over, and determine, both ourselves and our work. The severer of your S.C.'s critics would say that something happens which, because of its very regimentation, is attractive to the younger and less knowledgeable amongst us, who call for its perpetuation because, like St. Peter, they feel that "it is good to be here." Whereas to most of your S.C.'s critics the scheme—to vary Sir Maurice Cassidy's metaphor—does but show the cloven hoof of a state medical service. The two students who write are enthusiastic, as also is "Houseman," although it by no means follows that the prophetic and optimistic assessment of the result of the plan made by the latter—that it "would provide interesting, effective, secure and adequately paid employment"—would be fulfilled.

Let me now attempt to analyse the correspondence in regard to the other issues raised by your S.C. I take first the "three aspects of the E.H.S. which" your S.C. thinks "call for unqualified praise." The first is *regionalisation*. From the complete absence of any adverse criticism I assume that your contributors accept the principle. Indeed, they could scarcely do otherwise, and it surely did not require the E.H.S. to bring the principle to our notice; this was assumed as long ago as 1919, when the then Minister of Health (Dr. Addison) asked his consultative council "to consider and make recommendations as to the scheme . . . of medical and allied services . . . *for the inhabitants of a given area.*" The policy determining the areas is a moot question. The British Hospitals Association has recently defined these areas in such a way as to make the best use of existing hospital (and teaching) facilities, arranging the services around a university or a large hospital with a medical school. In your editorial you appear to accept this method of defining the areas and thus counter the contention of Sir Frederick Menzies that they must be based upon well-defined local-government areas, for you say that these last-named areas have only history and sentiment to commend them.

The second "facet" is *decentralisation,* and this, your S.C. hopes, "has come to stay." Concerning it, however, great diversity of views is expressed. Dr. Izod Bennett, Dr. Walshe and others urge the importance of town facilities and amenities alike for patients and doctors, and both of the above-named correspondents point out that most patients recover from their illnesses as well in the city as in the country. Dr. Douthwaite dismisses decentralisation as waste of time and energy. Sir Alfred Webb-Johnson raises such pertinent inquiries as to how it would work if we had outpatients at the centre and beds at the periphery; whether special departments, X rays and pathology would not (with decentralisation) require duplication, and if it would not mean that for many of the students their day would be bisected; and he concludes with the parody: "where the population is there must the health services be also." Dr. Macgregor's reference to the desirability of building new hospitals neither within the city nor far from it, but just outside, is illustrated by recent decisions at Birmingham and Glasgow. (The coloured diagram in the Dawson scheme shows the "secondary health centre" situate just outside a large town.) Dr. Gainsborough speaks of "decentralised, regionally controlled hospitals" as though the two principles necessarily go together. But the criticisms against decentralisation are so strong that your S.C. (whose reply I have been allowed to see) feels that this principle should not be linked too closely with regionalisation lest both be sabotaged.

"The third blessing which the E H S has brought" is the practicability of transporting the sick from town to country. Your S C says this has been demonstrated, but, as I remarked earlier, the whole of the E.H S remains still to be tested. He protests (in his reply) against the gibes with which correspondents have received his green buses. True, some of these gibes seem unfair, and yet they were perhaps invited by his enthusiasm, which almost suggested that a ride in one of the buses had therapeutic value—another thing as yet not proven.

The fate of the voluntary hospitals arouses the usual pros and cons in regard to these old established and (as many think) efficient institutions. Your S C's plan disposed of them and their property in good buccaneer fashion, but this "mixed" form of hospital service (Dr Gainsborough) receives a great deal of praise and from all quarters. Two or three writers make the curious comment that because their financial soundness turns more and more upon some form of contributory scheme they are therefore not voluntary. I recommend these correspondents to pay a visit to Merseyside and see the pride and enthusiasm taken by the people there in financing and controlling their large group of hospitals. Many of us have come to regard the principle of contributory schemes as the soundest means of financing hospital services and think it should be more universally adopted. As to its success, Wolverhampton doubled its income in the first five years from starting such a scheme and Leatherhead has actually rebuilt a part of its hospital out of funds saved from this source. In his reply your S.C says that contributory schemes convert the voluntary hospital into a huge health insurance company. But why not?

What we miss from the discussion is any attempt to deal with the pressing problem of achieving effective collaboration between the voluntary hospitals and the municipal hospitals so as to eliminate the wastage that arises from continuing the two services on lines that tend to become more and more parallel. The questions of administration and control of the (postulated) regionalised hospital groups receive interesting answers. It is noteworthy that even your S C shrinks from handing over the central control to the Ministry, as do others. An ad hoc body seems to be the general choice, with regional committees under it.

There remains the vexed question of the whole- or the part-time man, but it is clear that the majority favour the whole- *and* the part time man. Dr Izod Bennett probably provides the key to the matter in his use of the word "individuality." The suggestion that the whole time man serves God and the part time man serves Mammon is not less offensive than that the whole-time man is devoid of energy and personality. Both suggestions are untrue. I see that your S C., in his rejoinder, admits the cogency of his critics' views and suggests that we should try both the whole- and the part timer, forgetting that we have done this, and successfully, for a good many years—and are, therefore, likely to continue to do so.

The consultant comes in for even more ignominy than the part-timer—which, indeed, until he retires from the active staff of his hospital he usually is. Your S C admits that he overstated the case against the need for the consultant. That is good. The picture of this moribund and bankrupt member of the profession was bound to rouse denials of its verisimilitude just as that other picture of your S C as Sir Galahad, starting out to rescue him from penury before it is too late, reduces Dr Walshe to rollicking merriment. And the question could scarcely fail to arise why, if the consultant is so effete, so corrupt and so *unnecessary*, it is desirable to try to resuscitate him.

I find it difficult to part with the subject without introducing a wider reference than the one which, in the main, the discussion followed.

(i) In your leading article you referred to the fact that "Hospitals exist for the benefit of the public—the personal convenience of the staff is of less consequence." All the same, there is here more talk about the security of the doctor than there is about the claims of the patient. Need the doctor trouble so much about security? Thoreau said that if a man made a better mouse-trap than his neighbour all the world would make a path to his door. This experience together with the all-powerful instinct of self-preservation will ensure the survival of the good doctor, whether he be a general practitioner, a researcher, a teacher or a consultant.

(ii) The successful planning of any hospital scheme must, as Sir Frederick Menzies and Dr MacWilliam insist, be made in relation to the health services as a whole, of which, as the latter remarks, the hospital should be the dynamic centre. If it is not so planned it is doomed to failure. I think it is a pity that so many of your correspondents deal only with the more provocative and disruptive parts of your S C's inquiry and stop short of those constructive suggestions of which they are surely capable.

It has been said that we have in this country the best health services in the world. I do not think that this is an overstatement. The trouble is that we have to qualify it by introducing the word "potential," since the machinery is not fully utilised by the people for whom it was created. To plan a really sound hospital scheme would go far towards "letting in the clutch" between the power unit (the doctor) and the car (the patient). This correspondence will have done much good by ventilating vexed questions and keeping alive in our minds the urgent need for action so soon as the dogs of war are leashed once again. And leashed, sooner or later, they will be. Then, "so what"? Surely some of us will tackle this hospital problem as our contribution to whatever peace-aims fall within our power to achieve. The hospital cannot be divorced from the health services. Regional coördination is conceded. Collaboration between voluntary and municipal hospitals is urgent and should yield to tact, good-will and exigency. The needs of the public must determine the nature and number of the personnel. The training of doctors and nurses is a paramount part of the health services and must be recognised by the State. These are the principles which must be kept in mind.

And finally, Sir, I hope you will not think me merely curious if I suggest that the publication of the identity of your special commissioner will help us to discount any nuance of special pleading in the valuable and courageous contribution which he has made towards this consummation.

I am, Sir, yours faithfully,

Jan 18,

Hoppin

*** The article in The Lancet of Oct 28 was written "without prejudice" by a member of the editorial staff Dr Stephen Taylor before he was commissioned in the Royal Naval Volunteer Reserve —Ed L.

THE E.M.S. AND PARLIAMENT

SIR,—In his letter in your last issue, Sir Ernest Graham-Little makes certain statements which should not be allowed to go forward unchallenged He is evidently under a misapprehension as to the functions and composition of the Central Emergency Committee. I should like, therefore, to remind him of the following facts

1 The Central Emergency Committee was set up for the express purpose of supplying medical personnel to the fighting services and to the Ministry of Health. The committee had no authority to advise on policy or strategy although many of its members have repeatedly deplored the imposition of any such limitation of activity.

2. There are not less than 16 consultants on the Central Emergency Committee who represent on a *functional* basis the whole sphere of consulting practice

3 The Central Emergency Committee is not responsible for the profound dislocation of hospital life in London and the unsatisfactory conditions of the E.M.S. which resulted from that dislocation The strategic plan adopted by the Ministry of Health was drawn up in advance of the emergency by the London sector officers

I am, Sir, yours faithfully,

Manchester. HARRY PLATT.

A TREATMENT OF RHEUMATISM

SIR,—Before I was called up for service in the R.A.M.C. I was getting some interesting results in the treatment of rheumatism, and I am writing this letter before they are completed because there seems no possibility of my continuing with this treatment for a considerable time. I came to the conclusion that there was a possibility that the septic focus that has so often been sought for might be situated in the skin. I thought that the multiple foci in the deep parts of the sweat glands would account for the popular beliefs concerning rheumatism, such as the effect of cold and wet, and also for the incomplete results in the physical treatment.

To reach this part a fat-soluble antiseptic that could be rubbed in was needed. This seemed so simple that I thought my theory must be wrong, but when I looked for one I found that there were very few, simply weak ones such as the salicylates. Then a new antiseptic, Azochloramid, was brought to my notice. This can be obtained in a solution of triacetin which makes a solution in olive oil I have been rubbing this solution into the skin in cases of superficial rheumatism and even in the cases of arthritis The results have been most encouraging, even curative

I would be grateful if other general practitioners would give this so simple a treatment a trial, and let me know their results

I am, Sir, yours faithfully,

Petworth, Sussex W. A. BALL

SODIUM DIPHENYL HYDANTOINATE

IN a letter in our issue of Dec 9, Messrs. Glaxo Laboratories Ltd pointed out that Epanutin is not the only preparation of sodium diphenyl hydantoinate on the market, and that a G L preparation was now available under the name Solantoin. Messrs. Parke, Davis & Co. now remind us that the original work on anticonvulsants by Drs Putnam and Merritt was carried out in the United States with a drug supplied by P., D. & Co. which is now known there as "Dilantin" and in this country as "Epanutin." Furthermore, as mentioned in the *Journal of the American Medical Association* (Sept. 17, 1938), the study was aided by a grant from that company, and almost all the subsequent independent clinical trials in Europe and in America were conducted with their product

Continued at foot of next column

Continued from previous column

TREATMENT OF NEUROSES IN AIR-RAIDS

THE incidence of psychiatric or neurotic casualties likely to result from air-raids is a question on which there is considerable divergence of opinion. Some say that such casualties will occur in large numbers, but those with practical experience of air-raids suggest that this view is mistaken. Professor Mira, for example, who was in Madrid and Barcelona during the Spanish war, states definitely that the incidence of neuroses was comparatively small, so small that there was not sufficient employment for the psychiatrists in Spain, some of them having to be transferred to general medical work. Any scheme for dealing with psychiatric or neurotic casualties must therefore be on a basis which will admit of indefinite expansion should circumstances require it, although it is far from certain that these circumstances will arise. The scheme elaborated by the Ministry of Health has been constructed with this in mind.

LONDON AREA

The special arrangements for dealing with neurotic casualties are of course closely linked with the main Emergency Hospital Scheme in the area. Each sector contains a large number of hospitals which are so organised that casualties arriving at first-aid posts or casualty hospitals within the sector, and which cannot be dealt with other than temporarily at this level, will be evacuated to hospitals further afield in the same sector. This procedure, while admirably adapted to the rapid and appropriate disposal of organic injuries, requires considerable modification in its application to neurotic cases First, in many of the cases success is dependent upon early treatment being obtainable near the site of onset. Secondly, if cases of simple fright and mild neuroses are immediately evacuated to hospitals further down the line the accommodation required for organic cases under the conditions of a severe air-raid might be unduly strained. Thirdly, owing to the psychological factors underlying neurotic disorder this procedure might lead to a great increase in the incidence of such disorder. Fourthly, it is undesirable that neurotic cases should be treated in the same wards and under the same conditions as organic cases, as this again may tend to accentuate and prolong neurotic illness. Lastly, more severe neurotic cases require special methods and expert care, which may not be available in general hospitals It is therefore essential to secure that simple neurotic cases are dealt with adequately in the "front-line"—i e, at first-aid posts and casualty hospitals—from which the large majority may be returned to their own homes after any necessary preliminary treatment; next, that only those cases which in the opinion of an expert require more prolonged treatment are sent down the line, facilities being provided for the careful sorting out of such cases; and, finally, that cases so sent down go to special hospitals, where the staff and methods suitable for these cases are available

In order to secure these ends the following machinery has been established. Each sector has been divided into four or five areas, and a neurologist or psychiatrist (including in the latter term "medical psychologist") has been attached to the hospitals of each area The duties of this officer are (*a*) to make himself acquainted with the topography of his district, (*b*) to get in touch with the various hospitals comprised in that district, and to ensure the smooth working of the neuroses scheme (*c*) to establish, with the aid of the group officer, outpatient departments in one or more of these hospitals where neurotic conditions can be treated, and to which general practitioners may send cases for which specialist aid is required, and (*d*) to decide which cases need the more prolonged and specialised treatment to be obtained in the special neurological hospitals In general, cases can be sent to these special hospitals only on the advice of the neurologist or psychiatrist In the event of a local air raid any further specialist staff required will be drafted in from other districts

Instructions have also been issued to the medical personnel of first-aid posts, a part of which was reprinted in the recent report of the conference convened by the Ministry of Pensions (see THE LANCET, Dec 16, p 1278) These instructions emphasise that in cases of simple fright, and in the majority of mild neuroses, all that is required is sympathetic but firm handling, opportunity for temporary rest, with or without sedative drugs, and then the return of the patients to their own homes Such patients may be advised, if necessary, to report to their general practitioners or to attend the special outpatient departments established in their district More severe cases will be referred by the officer in charge of the aid-post to a casualty hospital

Four special neurological hospitals have been organised at various places around London, but all situated at least 10 miles from the central area These hospitals, staffed entirely by neurologists and psychiatrists, are designed for the treatment of those patients whose condition is too severe to enable them to be sent to their own homes, or to be dealt with adequately as outpatients. The neurological hospitals also provide mobile units which can be sent to neighbouring areas to supplement, in the case of a local air raid, the neurologists and psychiatrists attached to those areas Two of the special neurological hospitals (at Mill Hill and Sutton) have been organised by the Maudsley Hospital, which has in effect been divided into these two units. The remaining neurological hospitals are situated at Isleworth and at Maidstone, and a fifth hospital is projected in Essex. A special hospital has also been established near Watford to deal with cases requiring more prolonged psychological treatment If more accommodation is required, it is proposed to provide neurological units in association with the base hospitals more remote from London

THE PROVINCES

Arrangements similar to those of London have been made in each of the provincial areas, though of course modified in accordance with their needs In particular, the aim of providing special neurological hospitals in which the patients will be under expert care has been followed throughout About twenty such units have been established in the provinces each of which can receive patients from neighbouring towns or from a more extensive district A pool of neurologists and psychiatrists who are under contract for service has been prepared from which specialists can be dispatched immediately after an air raid if their services are required to supplement those locally in charge of arrangements

OBITUARY

THOMAS FRANCIS TODD

M S LOND, F R.C.S, M R C O.G
MAJOR, R A M C

Frank Todd, the gynæcologist was killed in France on Dec. 1 when the car in which he was a passenger collided with a lorry At the outbreak of war he had volunteered for service in the R A M C, and, having refused opportunities of working at home, was attached to No 6 General Hospital in France at the time of his death This accident brought to an end a career which promised to be outstanding, for he had the keenness the untiring energy and the inquiring mind that bring great results in research Although he was only 31, he had already established himself as an authority on carcinoma of the cervix

[illegible]

Born in 1908, Todd was educated at Prior Park College, Bath and Guy's Hospital At Guy's he got his Lond n M B in 1931 and while still house surgeon passed his final F R C S at the age of 24 In the next two years he became a M R C O G and master of surgery After this brilliant start, he had six months' experience as ship's surgeon and in general practice, and then returned to Guy's as registrar and demonstrator of anatomy Next he spent a year as R S O at Preston Royal Infirmary In 1934 his connexion with the Christie Hospital, Manchester, began with his appointment as assistant registrar at the Holt Radium Institute, where he gained a sound groundwork experience of radium therapy in general The most fruitful phase of his attachment to the Christie Hospital was as research fellow His researches there must rank in importance with those of David Goodfellow into the effects of radiation on the blood He made a series of investigations into the natural evolution of carcinoma of the cervix and the action of radiation in the disease He first studied the nature and ætiology of the pain, and showed that it was of two distinct types—visceral and somatic—and that a distinction between the types could be made in every case He then developed effective methods of treatment for each type visceral pain being relieved by presacral neurectomy and somatic by intrathecal alcohol injection His later results are set out in a paper in this issue From this he turned to the complications of treatment of carcinoma of the cervix and of spreading malignant disease on the rectum, bladder, the ureters and kidneys He classified the different subjects of rectal necrosis following radium treatment of cervical cancer, and described his studies in this field in a Hunterian oration (the second he had given) to the Royal College of Surgeons this year Before the war he had made a list of subjects needing investigation which would have kept him busy for years His method of approach to these problems was a painstaking investigation of large numbers of individual patients. He had an amazing memory for detail and a natural and well-cultivated ability to abstract general principles from a mass of observations He had travelled widely, visiting the gynæcological clinics in Dublin, Paris, Lyons, Vienna and the United States, and was becoming a familiar figure at Heyman's clinic in Stockholm. He was on the medical staff of the Hope Hospital, Salford, where he founded a weekly discussion clinic in gynæcology, the Crumpshall Hospital, Manchester, Salford Royal Hospital, Leigh Infirmary and St Mary's Hospital, Manchester, besides carrying on a busy consulting practice. His powers as an operator and diagnostician were not yet fully developed, but he was an indefatigable worker in the outpatient department, where he insisted on every case, however uninteresting, being fully investigated.

Few can have gained such complete joy from their work With his abounding vitality he took all life had to give but used it sparingly To watch him smoke his daily cigar after a small well-chosen dinner, writes a colleague, made one realise that here was a wise exponent of the art of living. In spite of his success, he was a man of true humility who realised how much there is to learn He welcomed criticism, but was a pretty fighter in defence of what he believed to be true. His was a gallant, keen and thoughtfully open mind, eager to learn and to serve, and eminently capable of carrying to full fruition the work he had begun so well

FREDERICK H. J. WESTON

M.B. LOND., M.R C.S.

PROBATIONARY SURGEON-LIEUTENANT, R N.V.R.

AMONG those reported missing from H M S. *Rawalpindi* was Surgeon-Lieutenant F. H J Weston, the fifth son of Mr and Mrs. W. J. Weston of South Norwood He was educated at Merchant Taylors' School, Crosby, Liverpool, and Whitgift School, Croydon From there he went to Guy's Hospital, where he qualified in 1934 He was house-physician to Professor Ryle at Guy's and subsequently held house-appointments at Croydon General Hospital, St George's-in-the-East (L C C.), and the Hertford British Hospital in Paris. He was ship's surgeon in the P & O. s s *Rawalpindi* on her last voyage before the war. He was then mobilised in the R N.V.R., and was again serving in the *Rawalpindi*, now H M S. and an armed cruiser, when she was sunk after being in action with the German pocket battleship *Deutschland* off the coast of Iceland. He was married on Sept 21 of this year.

Prof J. A Ryle writes: “I had the great privilege of working with Weston during three stages of his career He was with me first of all as a student at Guy's, later as house-physician, and shortly after my arrival in Cambridge he came to Addenbrooke's Hospital as house-surgeon. His was a sterling character He was very keen on his work and always trying to advance and improve his knowledge and to increase his academic attainments Although he already held the London M.B degree, he seriously considered staying on at Cambridge to take the Cambridge degree as well. I remember discussing this matter with him and advising him eventually against expending further time on preliminary subjects when he was already so advanced and well-equipped in clinical experience. He is, I believe, the first Guy's man of his generation to lose his life on active service in the present war. I know that the sorrow of all Guy's men who knew him will have been mingled with pride when they heard that he had shared the fate of the gallant crew of the *Rawalpindi*”

TREATMENT OF WOUNDS IN THE 'SEVENTIES.

DR. J. THORESBY JONES writes: It was in the '70s that Lister's methods first came into my work. For dressings we were supplied with gauze, boiled and soaked in carbolic acid, and the same material was used for swabs and for bandages. The carbolic was supplied in Winchester quarts in a standard strength of 1 part to 20 parts of distilled water, but for common use we had 1 in 40, 1 in 60 and 1 in 100. Before attending to wounds we dressers would change our outdoor coats for dirty jackets which were kept hanging up in the students' room, and which were worn for weeks or months without being washed. A friend of mine, a well-known throat specialist in after years, had his apron made of red material so as to avoid shocking patients with the sight of blood-stains. When operating he had a habit of wiping his fingers on the front of this apron. As it was red to start with he was able to go on wearing it for weeks.

The wounded part would be bathed with gauze soaked in 1 in 60 carbolic, and the bruised tissue cut away with scissors and forceps which had been in soda solution—a bit of washing soda dissolved in a pint of water. We were almost entirely ignorant of sterilisation We knew that bacteria were freely spoken of as being present in pus, and we therefore washed away as much pus as possible. After thorough cleansing, a piece of “protective”—transparent paper something like modern Cellophane—was applied next to the wound, and over that a pad of carbolised gauze kept in place with a bandage of the same material.

Ulcers were common in those days and would be brought to the hospital carefully wrapped in coarse linseed poultices made on tow The poultice would be removed and the wound dressed as described above. I may say that when the patient came back in a day or two the ulcer was in a very different condition from what it had been with the poultice, but did healing proceed at all under these conditions? The fact of it having been cleansed must have helped, but it took a long time to heal I know now that the reason for the length of time was the constant movement of the patient. If we had tried immobilisation I think we should have had much quicker results

I did not see more than two or three appendix cases before the end of the '80s, but was present at the first to be operated on at U.C H. It was not known to be an appendix but was looked upon as an acute typhlitis and treated by linseed poultice. A young surgeon, Marcus Beck, told us that he suspected an inflamed appendix which would have to be removed He had read about it, but at that time there was reluctance to open the abdomen. Beck worked without any fuss. The anæsthetic (always chloroform) was given and his two dressers were with him. I was there because I always managed to get my nose in somewhere if there was anything worth seeing. When an operation was being performed carbolised sprays were used I have often spent a Wednesday afternoon in the theatre in the condensed spray of four steam-spraying machines working simultaneously with the consequence that one's shoes were saturated with the condensed carbolic on the floor. This had serious results in the case of one or two of my colleagues, for it set up irritation of the kidneys. After the operation the wound was dressed with wet carbolised gauze for three days. Then, all appearing well, a dry dressing was applied and the result was good

PARLIAMENTARY INTELLIGENCE

FROM THE PRESS GALLERY

Milk and Nutrition Policy

In the House of Commons on Dec 13 Mr W S **Morrison**, Chancellor of the Duchy of Lancaster, said it would be necessary for the Government to assume responsibility for milk policy as a whole during the war as regards production price and distribution It would be agreed however that it must be subject during the war to general direction The war had led to many new problems in milk policy The milk-in-schools scheme had been gravely dislocated because of the removal of schools which were the normal channels of distribution He was anxious that this and similar beneficent schemes should be stimulated during the war to the utmost possible extent The immediate problem was that of price There had been no rise so far in the price of liquid milk for ordinary consumption but the Milk Board had now informed the Government that they were proposing to negotiate with the Central Committee for a rise of 1d per gallon, and the Government had decided that some increase in the producers' returns was justified In order to permit a full examination of the position, the Ministry of Food would make a temporary grant to the Milk Marketing Board sufficient to raise producers' returns by *3d* per gallon in January and February, and *2½d* per gallon in March, above those realised in the corresponding months of 1939 provided that the existing retail prices were maintained

Dr **Haden Guest** said he was glad to hear the Minister announce a milk policy which apparently did not raise the price to the consumer, but the minister's statement did not go far enough from the standpoint of the importance of nutrition Nutrition policy ought to be considered as carefully as was policy for the fighting forces There ought to be a carefully thought out programme of milk production covering the next three years Medical authorities laid down that the average consumption of milk for all adults should be half a pint a day, but milk, while desirable for adults, was the keystone in the nutritional structure with regard to infants It was essential, too, for expectant and nursing mothers Upon our milk policy would depend our reserve of child life In 1935 an expert committee appointed by the League of Nations produced a report on the physiological bases of nutrition, in which they expressed the opinion that the amount of milk which should be consumed by children and by nursing and expectant mothers was not half a pint, but two and a quarter pints a day Our milk consumption was very low in comparison with that in Scandinavia and the United States, and he hoped the Government would not remain content with the policy which they had today announced, but would go forward to a bolder and more far-reaching policy

Dr **Edith Summerskill** said that she had every sympathy with the farmers the producers and the distributors, but if the policy expounded that afternoon was followed, even though the price of milk was not to be raised, the Government was not encouraging the consumer to buy more milk People were to be asked to limit their consumption of bacon, butter, sugar and meat and surely a constructive Government should give them an important substitute at a reduced price In a recent article Professor Mottram had said that if the health of the people was to be maintained in war the consumption of milk should be increased In 1918, when rationing had been introduced, the resistance of the people had fallen to a very low level and we had one of the worst influenza epidemics the world had ever known From time to time one heard about the marriage of health to agriculture That ceremony was long overdue

PASTEURISATION

Dr **Summerskill** asked whether the Government had taken any steps to maintain the quality of the milk supplied Forty per cent. of our cows suffered from tuberculosis She wondered if the House realised how serious the position was today In the big towns the big combines sold pasteurised milk, not because they were cranks, but because they knew that to test all milk by a tuberculin test was expensive and the only way to supply safe milk was to pasteurise it During the last three months the town children had been suddenly dispersed into the country districts where there were no pasteurisation plants These evacuated children had been sent to areas which were supposed to be safe from bombs, but which were in fact vulnerable to tuberculosis According to the statistics of the Ministry of Health, 2000 children died last year from surgical tuberculosis which was in great part due to milk borne infection It was absolutely immoral that there should be traffic in this infected milk

Sir **Joseph Lamb** said that Dr Summerskill's figures would frighten the public into believing that the bulk of the milk produced was not as good as it ought to be That was not true The bulk of the milk produced in large quantities in this country was of very high quality It was only when small quantities were produced under unsatisfactory conditions that they got a large percentage of unsatisfactory analytical results

Lord **Apsley** said he thought that the question of the pasteurisation of milk had been "debunked" long ago Doctors did not always agree, and it was quite easy to get one learned set of medical authorities to say one thing and another set to say something entirely different

Dr **Haden Guest** Not about milk

Dr **Summerskill** They are unanimous

Lord **Apsley** said that he had never known doctors unanimous about anything A learned professor in Edinburgh had told him that they had conducted a series of experiments on children in Scotland with pasteurised and unpasteurised milk and had found that the pasteurised milk was so lacking in nourishment that the children became more liable to disease for that reason alone The professor also told him that if pasteurised milk was poured into a cup and a fly just put a foot into it it would react to a severe tubercular test It could not be kept clean from infection Only fresh good grade A milk was of benefit to children —Dr **Haden Guest** drew the noble lord's attention to the report published by the Milk Marketing Board, dealing with an experiment on over 6000 children, which showed that the nutritional difference between pasteurised and unpasteurised milk was insignificant.—Lord **Apsley** said that he preferred the opinion of his medical professor.

National Expenditure

In the House of Commons on Dec 12 a Select Committee was appointed to examine the current expenditure on the services directly connected with the war, and "to report what if any economies consistent with the execution of the policy decided by the Government may be effected therein"

Adjournment for Christmas

Parliament adjourned on Dec. 14 for the Christmas recess Both Houses will reassemble on Jan 16.

QUESTION TIME

Emergency Beds in Hospitals

Mr Parker asked the Minister of Health whether he was aware that the number of emergency beds provided by the London County Council [illegible] under the emergency hospital scheme was [illegible] excess of those provided by the voluntary [illegible] that the former were not provided with anything like the same proportion of extra doctors and surgeons; and whether he would state the proportions of extra doctors and surgeons engaged under this scheme in voluntary and municipal hospitals, respectively, relative to the number of emergency beds provided.—Mr. Elliot replied: The number of beds available in municipal institutions is naturally larger than in voluntary hospitals. It is the case that the proportion of medical staff enrolled in the E.M.S. to casualty beds is higher in the case of the voluntary hospitals than in that of the municipal hospitals, but in the latter hospitals the medical staff available for casualties includes also a number of doctors in the employment of the local authority but not enrolled in the E.M.S. In any case, I do not consider that any useful conclusion could be drawn from a comparison between the respective proportions of beds to medical staff in the two types of hospital. The medical staffing of a hospital included in the E.M.S. is governed by medical needs, and depends on a number of factors such as the probable use and the arrangements with affiliated hospitals.

Available Surgical Skill

Sir Ernest Graham-Little asked the Minister whether in view of the necessity of maintaining the most experienced available surgical skill in London, where the first and most critical effect of any air attack must be expected, he would revise the arrangements by which nearly all the most experienced surgeons were awaiting the expected casualties in centres remote from London.—Mr. Elliot replied: The present arrangements, which were made in general agreement with the profession, provide for the bulk of the surgical treatment required by London air-raid casualties being given by the more experienced surgeons at hospitals on the periphery of, but not necessarily remote from London, and for the rapid transfer of the patients to these hospitals. These arrangements are designed not only to secure the most efficient treatment of the patients but also to avoid undue risk to highly skilled and irreplaceable personnel, and I think it undesirable to revise them further for the present.

Replying to a further question about experience of air casualties in Spain, and the primary importance of immediate surgical attention of the highest quality, Mr. Elliot remarked that any who have had experience know that a hospital in the centre of a bombarded town is not always the most auspicious place to which to bring casualties.

The New E.M.S. Offer

Sir E. Graham-Little asked whether the Minister could now state the number of members of the honorary staffs of the voluntary hospitals who had accepted the new conditions outlined in his answer of Nov. 23 and the number who had actually returned to take up their duties as regards conduct of out-patient and other specialist departments and systematic education of medical students in the voluntary hospitals; and whether the offer of transfer to this new scheme from any form of agreement previously accepted in individual cases covered those members of hospital staffs who were receiving the second grade of salaries for whole-time service.—Mr. Elliot replied: To date 337 specialists and consultants have accepted the offer referred to. I cannot say how many of these have returned to their normal duties. It was not suggested by the professional committee consulted that the offer of transfer should extend to members of the E.M.S. receiving the second grade of salaries for whole-time service.

Sir E. Graham-Little: May I remind the Minister that in his answer on Nov. 23 he, as I thought, undertook to facilitate the transfer to the new scheme that he was offering of all voluntary staffs who had accepted full-time engagements, irrespective of any agreements which they had previously accepted; and will he not regard this category of honorary officers as being covered by his undertaking?—Mr. Elliot: I will again examine the answer I gave. I do not evade carrying out any undertaking that I have given.

Domiciliary Treatment of Injured Civilians

Mr. Denville asked the Minister if he would give details of the temporary domiciliary medical service for civilians, other than insured persons, who sustained war injuries when hospital treatment was not necessary or was impracticable; whether the scheme was to apply to the whole of Great Britain; and how the scheme was to be administered.—Mr. Elliot replied: Details of the service referred to will appear in a forthcoming memorandum. The scheme will apply to the whole of Great Britain, although there may be differences of detail in Scotland. It will be administered by my department in England and Wales and by the Department of Health in Scotland.

Medical Fees for Unaccompanied Children

Mr. Groves asked the Minister whether he would reconsider the arrangements relating to medical services whereby the remuneration of medical practitioners was dependent upon a local emergency medical committee disbursing Government funds on such basis, whether capitation or attendance, as might be found convenient to the committee; and whether his department, as responsible for the provision of the medical services, would deal with the expenditure and have it properly certified by the Exchequer and Audit Department.—Mr. Elliot replied: I see no reason for varying the arrangements made for the medical treatment of unaccompanied children evacuated under the Government scheme. The total amount payable for this service is determined by my department on the basis of the number of unaccompanied billeted schoolchildren as indicated in returns received from local authorities, and the payment by the department is subject to audit. The distribution of the amount for each area amongst the doctors is dealt with by the local emergency medical committees, who will be required to send in periodical accounts which will be available for inspection.

Consultants for Nervous Disorders

Sir Francis Fremantle asked the Secretary of State for War how far the recommendations of the War Office Committee of 1922, based on the experience of the last war, regarding the prevention and treatment of nervous disorders had been adopted by the Army medical service for our forces in the field.—Sir V. Warrender (financial secretary for the War Office) replied: Officers of the Royal Army Medical Corps have for some years received and given instruction based on the recommendations of the committee referred to. Two eminent consultants in psychological medicine have been appointed to the Army, one at home and one in the field, and have given advice as to the lines of treatment which they consider should be adopted in cases of nervous disorders in the field.

Milk-in-Schools Scheme

Dr. Haden Guest asked the Parliamentary Secretary to the Board of Education the number of education authorities who made use of the milk-in-schools scheme; what was the number of other authorities who supplied milk at reduced rates in connexion with centres for maternity and child welfare; and what was the total quantity of milk so supplied for both purposes for the latest convenient period.—Mr. Kenneth Lindsay replied: Before the war the milk-in-schools scheme was in operation in some or all of the schools in the areas of 312 of the 315 local education authorities in England and Wales. In some areas where the schools have been closed since the outbreak of war the operation of the scheme has been temporarily suspended, but in all these cases the local education authorities are being urged to introduce emergency arrangements as soon as possible. The second part of the hon. member's question should be addressed to my right hon. friend the Minister of Health. The approximate quantity of milk supplied under the milk-in-schools scheme in October last was 1,500,000 gallons.

Tuberculosis in Monmouthshire

Mr. Jenkins asked the Minister of Health whether his attention had been called to the statement of the medical officer of health for the county of Monmouthshire to the effect that persons suffering from tuberculosis were dying because of the failure of the Welsh National Memorial Association to provide the requisite hospital accommodation; and what steps he was taking to investigate the position—Mr ELLIOT replied The answer to the first part of the question is in the negative I am informed, however, that the list of tuberculous patients for Monmouthshire, including Newport, who are awaiting admission to residential institutions includes a large proportion of cases of the advanced hospital type It is hoped to devote a proportion of the beds in the new hutted hospitals to reducing the waiting lists in the coming year

Blood Transfusion in the Army

Sir FRANK SANDERSON asked the Secretary of State for War if he could give any information regarding arrangements for blood transfusion in the Army—Sir V WARRENDER (financial secretary to the War Office) replied Overseas, an organisation on the most modern lines has been provided that will ensure that supplies are available in forward areas for any soldier who requires blood transfusion. In this country, an Army Blood Supply Depôt has been formed which sends the blood required overseas and also serves the home hospitals Civilian blood donors have patriotically volunteered to provide a source of supply This Army service has the additional responsibility of providing supplies for the Royal Air Force

Nutritive Quality of Bread

Sir JOSEPH LEECH asked the Minister of Health whether he would require that bread supplied in institutions controlled by public authorities should be made of flour containing the wheat germ with the B series of vitamins, so that growing children in particular might not suffer from malnutrition owing to being given bread deprived of its full food value, and would he confer with the service authorities with a view to providing the forces of the Crown with bread containing the wheat germ.—Mr ELLIOT replied I have not the power to give any such general direction As to the second part of the question, the armed forces are under the medical charge of highly skilled personnel who have devoted much attention to questions of dietetics, and I do not think I could usefully adopt the suggestion

Nurses' Salaries

Mr HARVEY asked the Minister whether his attention had been called to the serious reduction in the salaries paid to trained nurses by a number of local authorities since the outbreak of the war, and whether he was taking any action to preserve the standards of the nursing profession—Mr ELLIOT replied I have received representations to the effect referred to though I am not satisfied that the facts are as stated I am making further inquiries into the matter but it is not one in which I have any power to give directions to local authorities

Corporal Punishment for Boy of 15

Mr POOLE asked the Home Secretary if he would exercise his discretion in the case of a fifteen year-old boy, found guilty of arson at the recent Birmingham assizes, and, in view of the police evidence as to his low physical and mental health due to the extreme poverty of his upbringing, cause the remission of that part of the sentence which related to the twelve strokes of the birch.—Sir JOHN ANDERSON replied I understand that when informing the court of the boy's character and antecedents the police quoted a report of the headmaster of his school which included a statement to the effect that his impression was that the boy lacked vitality, physically and mentally, because of the poverty of his home but the headmaster, in the same report, also expressed the opinion that he was a normally healthy boy Under the arrangements made for carrying out the sentence of the court, a medical officer will be present and will satisfy himself, before the sentence is carried out, that there is no medical reason against the infliction of the punishment ordered by the court I have been unable to find grounds which would justify my recommending any interference with the sentence which the court thought it necessary to impose

Marriage Statistics

Sir ARNOLD WILSON asked the Minister of Health to state the number of marriages during the last September quarter, as compared with the figures for the corresponding quarter of each of the preceding three years—Mr ELLIOT replied The figures are as follows

Marriages in England and Wales

September quarter—	
1936	115 445
1937	121,421
1938	116 316
1939	152,358

A Letter to the *Times*

Sir E. GRAHAM LITTLE asked the Minister of Health whether the communication by Sir Charles Wilson in a London daily paper dated from the Ministry of Health and of a propagandist nature, regarding the staffing and use of the London hospitals, was made with his approval, and, if not, whether he will take steps to see that no unofficial communications emanate from his department.—Mr ELLIOT replied The answer to the first part of the question is in the negative I think that the principle indicated in the second part of the question, which applies of course to both permanent and temporary officers of departments is generally well understood by those concerned The dating of the letter in question from the Ministry of Health was I am assured, quite accidental.

MEDICAL NEWS

University of Cambridge

Sir Augustus Daniel M B formerly director of the National Gallery, has been appointed Rede lecturer for 1940

Mr Malcolm Donaldson and Mr William Gilliatt have been appointed additional examiners in midwifery in Part I of the final M B examination to be held this month

University of Bristol

J S W Little's dissertation has been approved for the degree of M D

University of Aberdeen

On Dec 13 the following degrees and diplomas were conferred

M D—[illegible] Hendry (awarded commendation for thesis)

M B , Ch B—[illegible] Angus [illegible] Beattie J H Begg [illegible] Bernard R [illegible] Dewar [illegible] [illegible] Forbes [illegible] Fowler, J C Fraser James Carl [illegible] [illegible] Hemmack [illegible] Hughes [illegible] Johnston M J Mackenzie [illegible] Muir [illegible] Orr [illegible] J H Scott A C [illegible] Singleton [illegible] Walker A M Watson W G R Wilson and [illegible] Wright

D P H—R M Gordon and [illegible] Warrack

University of Edinburgh

On Dec 16, the following degrees and diploma were conferred

M D—*W L Brown †W S Campbell A H Crichton **J S Davidson *L A Knudsen †*R A H [illegible] *A [illegible] Mackinnon †J H D Millar P [illegible] Northover **[illegible] A S Russell ***[illegible] C White **J [illegible] Wilson

Ph D—†R C Dun *J C Thomson

M B , Ch B—J R Allan J [illegible] Anderson [illegible] Battle [illegible] Baskett Elizabeth G Batters [illegible] Bell [illegible] Bindman G M [illegible] John [illegible] Benjamin Carr David Crichton R H Daly [illegible] Davidson A R Duff R M Ellison J M [illegible] W M Ferguson [illegible] Fraser W A [illegible] W M Grant J H [illegible] Mohammed [illegible] Hood William [illegible] Hutton Helena [illegible] Lindsay [illegible] MacD[illegible] [illegible] W C Menzies W H [illegible] J L [illegible] G H Stuart W H [illegible] Thomas G [illegible] H Ward [illegible]

D T M—[illegible] Jacques

*** Awarded gold medal for thesis

** Highly commended for thesis

* Commended for thesis

† In absentia

THE fifth International Congress of Paediatrics which was to have been held in Boston, Mass, next September has been postponed

Royal College of Surgeons of England

At an ordinary meeting of the council held on Dec 14 with Mr Hugh Lett, the president, in the chair, the offer of Mr. Herbert Olivier to present to the college a replica of his portrait of Mr. Wilfred Trotter was accepted.

It was reported that the special trustees of the Prophit trust had renewed the cancer research studentships of Dr. L H Gray and Dr C A. P. Wood for the year 1940

Diplomas of fellowship were granted to the following.

N A Miller, L R C P; Roy Parkinson, M B Lond, M. P. Morel, M.B Camb; P W Houghton, M B Lond., H H. Fouracre Barns, M B. Lond., C G Rob, M B Camb.; J. C Coates, M B Leeds, J. L D Roberts, M.B Lond; J S Horn, M B. Lond; R. L Lamming, M B Leeds; C J. Longland, M B. Lond, A J Heriot, M B Lond., S H Raza, M.B Lond, Alice J. M. T. Barnes, B.M Oxfd, W. P Greening, L R C P.; C P. Sames, M B Lond; D. M Thomson, M D Manc, P. A Menon, M.B. Madras, L.R.C P; S S Anand, M.B Punjab, J. R Barbour, M.B Adelaide: A. C Belfield, M B N.Z, J. O. Corbin, M B Adelaide, Kalipada Das, M B Calcutta, D M Douglas, M B St. And; K. T Goldswain, M B Cape Town, B C Hardy, M D Toronto, J W Horsley, M B. N Z; C. J. D Langton, M B. Sydney, J F Lipscomb, M.B. Sydney; Riyaz-I-Qadeer, M B Punjab; and T. F. Rose, M B Sydney

A diploma of membership was granted to H. V. Reeves of St. Thomas's Hospital, and licences in dental surgery were granted to the following:

K W. Adam, Mahmud Ahmad, Robert Allen, C P Aps, J. L Badget, G H Bailey, A. W. A Baker, Ludwig Bencze, A G. Beynon, Alfred Braun, Alan Brown, Fred Butterfield, J S. Calnan, R J. H. Corfe, W G Cross, D M Cushing, E G Dadak, A. S Davie, Fritz Engel, I O Enos, R A F Evans, H H Fielder, D P. Finnegan, Joseph Fleischmann, Phillip Fletcher, F C Francis, S A Freeman, P W Gant, J B Gayes, W F. Gibb, Karl Giesskann, D F. Glass C H Griffiths, D. C Hall, H. A Hall, J G Hancock, J W S Harvey, W. J Head, G J M Holland, I H F Holmes, Sidney Holt, C F Hudson, R G James, D P Jones, R C Jones, P D'O Kolesar, Heinrich Krott, Jacques Kuror, J W Lee, C R Levy, F T. J Limpenny, Robert Loff, K B Lole, H. M Lopez, S G. McCallin, Edith Mahler, A. F Mathias, E J Martin, A S Mondschein, L. G. Morey, W G Morgan, Wilhelm Mosinger, Gaston Nadin, J. B Nixon, Walter Nuki, Hans Orlai, John Parakal, H. I L Phillips, Marjorie L C Phillips, Otto Pick, R. D. Plowman, Leander Pohl, A. M Pollard, Cecil Pollock, L P. Potter, C J F. Pulley, Karl Richter, J. C. Ritchie, S H Roache, G B Roberts, P D M Rowland, J H. Sarginson, Hans Schachter, G P Scott, Kathleen S Silas, A R D. Smith, E. S Smith, W. T. Smith, K L Spring, F N Stares, Arthur Stone, S L Strachan, J E Taylour, Walter Thaler, J. H. Thomson, A H G Trevanion, E A St H Tweney, A. T. Vale, Alan Walton, M. C. Whiting, R I. H Whitlock, P O. Wilson, Keith Wood, H A. Woodward and J. H. Young

Diplomas in anæsthetics were granted, jointly with the Royal College of Physicians, to the following.

R D. N. Bisset, F K. Boston, Dorothy M Braddock, I G. Braddon, Elizabeth M. Corbin, T F Crowley Charlotte S. Dafoe, E W. Dunkley, G H Ellis, F G Ethiraj, Margaret Forbes, G P. Fox, Hunter Gillies, Philip Glazer, C A. Hayes, A L St. A McClosky, W. M Maidlow, Beryl M Mason, B M. Phillips, T. B Pitts, N F. Sahor, R N. Sinclair and B. N Sircar

Medical Regulations Abroad

The Iranian parliament has passed an act to regulate the employment of doctors in the state service. The act divides doctors into three classes and fixes the conditions of nomination, promotion, retirement, emoluments and hours of work for each class.

On Sept 9 a ministerial decree came into force in Jugoslavia which makes it compulsory for all doctors to serve a probationary period of two years in country districts or rural towns of not more than 4000 inhabitants

British Empire Cancer Campaign

The 16th annual report presented last week at the general meeting contains an account in 350 pages of research work of many kinds done under the ægis of the campaign Lord Hailsham, who presided, read a message from the Duke of Gloucester recalling that the Cancer Act 1939 made no provision for research, which was left to voluntary effort Lord Horder, in proposing the adoption of the report, said that the general move when war broke out to close down all such voluntary effort was followed by wiser second thoughts to continue research in matters affecting the health of the community despite the strain of war. Actually grants totalling £35,000 have been made for work in the coming year. On pp. 9–27 of the report Mr J. P Lockhart-Mummery makes a convenient summary of the work done in 1939.

Medical Registration Council

At the half-yearly meeting of the branch council for Ireland, the reports of Sir W I de Courcy Wheeler, who had inspected the final examinations in surgery held recently in University College, Dublin, University College, Cork and in the Apothecaries' Hall were discussed. These reports completed the inspection of final examinations made at the request of the council Prof. R W Johnstone has reported on midwifery and gynæcology and Sir Humphry Rolleston on medicine

Voluntary Hospitals Broadcast

The first national wireless appeal on behalf of all voluntary hospitals throughout the land will be made on Christmas Eve This combined hospitals appeal will take the place of separate appeals on behalf of individual hospitals, and the detailed arrangements are being made by a special committee representing the British Hospitals Association and King Edward's Hospital Fund for London.

International Society of Medical Hydrology

At a meeting of the general purposes committee of this society held on Nov. 17, Dr J Barnes Burt was elected chairman of council in succession to the late Dr E P. Poulton until such time as the whole council could meet The committee was strengthened by the appointment of four additional vice-chairmen, all in countries neutral in the present conflict The London office has been closed and the society's address will be, until further notice, that of the hon treasurer, Dr. G D. Kersley, 6, The Circus, Bath

Basis of Homœopathy

At the meeting of the British Homœopathic Society held at the London Homœopathic Hospital on Dec. 6, Dr W Lees Templeton, the president, delivered an address on homœopathic experimentation He described the treatment of twenty patients with pulsatilla The cases included anxiety states, arthritis, pneumococcal septicæmia, gout, chorea, chronic eczema, and pneumonia, but each had symptoms sufficiently well defined and peculiar to warrant the use of the same drug on the principle of similitude He said that this record epitomised the basic principle on which homœopathy was founded, that the prescription should be made on the symptoms present and not only on the diagnosis. Individualisation was essential in any adequate homœopathic prescription, and that meant consideration of a patient's reaction to environment, to heat and cold, to fatigue, to movement, to weather changes, to emotional shock, to grief, to disappointment, to unemployment, and a hundred and one such events He drew attention to a recent dictum that "few people are neurotic in face of inevitable death but many become so from disappointments in their careers or unhappy marriages" He suggested that modern medical thought was at last making a true assessment of homœopathy, which for a hundred years had endeavoured to elicit just such symptoms and causes in the production of nervous disease.

Valedictory Address at Aberdeen

At a graduation at Aberdeen University, Principal Fyfe told young doctors of the need for a spirit of inquiry at the bedside as in the laboratory. Successful doctors, he said, do not necessarily make much money but they bring to each patient human sympathy and their powers of dealing with a problem scientifically. Unless we succumb to the narcotic of empirical practice each patient is a problem Principal Fyfe was glad that the term "preventive" is now little used in medicine, for the new object is increasingly the promotion and construction of health In this field there is scope for enterprise and service, and he believed that after the war development would be even faster than in the last 20 years He thought those graduates who joined the services fortunate, since their skill will be available for all who need it without distinction of person, uniform or nationality They may also learn much about the practice of their craft and about human nature He looked forward more, however, to the days of peace when it will again be possible for doctors to cultivate those moral, intellectual and spiritual qualities so necessary for genuine success in their profession.

NOTES, COMMENTS AND ABSTRACTS

ANDREW BOORDE

Scholar, monk, recusant physician, man of the world and author, Andrew Boorde is one of the names familiar to every student of the history of medicine in England. Not that he stepped outside his own age, nor yet that he shone even in his own time with any special radiance, but because, where time has swept so much to oblivion, his strong common sense and his faculty for communicating his severely practical wisdom in brief and sententious language has preserved his works, or at least a part of them, for the delectation of our inquisitive age. It cannot be said that we know much of him. Dr. K. F. Russell tells us (*Aust. N.Z. J. Surg.* October, 1939) the few uncertain dates, the few uncertain facts, and of his curious and mysterious journeyings abroad. Was he perhaps a secret diplomatic agent of Cromwell's continental intrigues? There is some evidence that he was. But it is better to take Andrew as he reveals himself in his writing and to savour his sound and quaintly expressed wisdom on life and the pursuit of health without too strict an inquiry into the manners or the morals of the author. Of one thing we can be sure: like most men of the Tudor time he lived a busy and adventurous life and thoroughly enjoyed every day of it.

STANDARDISATION OF STRETCHERS

THE desirability of standardisation of stretchers, stretcher-gear and ambulance equipment generally has been apparent for many years. It impedes the smooth and efficient working of hospital services if the hospital trolleys will not take some of the stretchers on which patients are conveyed in ambulances to hospital or if stretchers will not go into an ambulance sent to remove patients to hospital. Further, the difficulties of handling stretchers in lifts, on stairways and in corridors, particularly in modern flats, are generally recognised and call for remedy.

In response to a request from the British Medical Association, which was endorsed by the Ministry of Health, the British Standards Institution has prepared a specification relating to the dimensions of stretchers, stretcher carriers in ambulances and hospital trolleys. The draft specification has been circulated to give those interested an opportunity to submit comments.

LOCAL ANÆSTHESIA OF THE THYROID

To reduce the amount of endocrine secretion of the thyroid, R. Gosio (*Policlinico, sez. prat.*, Dec. 4, 1939, p. 2102) practises what he calls "intraparenchymal anæsthetisation" of the gland, although he admits that the term is somewhat loose, because his object is not to abolish sensation but to put the excitatory nerves temporarily out of action by the injection of procain and the like. Now, the nerve-supply of the thyroid is said to be rich and varied, being derived from the carotid plexus, pharyngeal plexus, superior cardiac nerves, middle and inferior nerves of the inferior cervical ganglion, subclavian plexus, glossopharyngeal nerves, cardiac branches of the vagus, and hypoglossal nerves. Presumably some of these are inhibitory and others excitatory. Theoretically, one would have to "anæsthetise" the excitatory nerves to obtain a reduction in endocrine secretion, and the inhibitory nerves to obtain an increase, but Gosio says that in practice this selection, which would be well nigh impossible, is not necessary; "anæsthetisation" of the thyroid always inhibits secretion. This treatment, originally introduced to cope with thyroid emergencies, such as coma, was extended to deal with hyperthyroidism in general and other diseases in which the thyroid is implicated, such as essential hypertension and angina pectoris, in which Gosio claims to have achieved good results.

HYPERTENSIN

IN a letter to *Nature* (Dec. 9, 1939, p. 111) Muñoz, Braun-Menéndez, Fasciolo and Leloir, of the institute of physiology at Buenos Aires, describe a substance which they believe to be the cause of renal hypertension—hypertensin. They recall that Goldblatt obtained a rise of blood-pressure by compression of the renal artery and Houssay by injecting the venous blood of the kidneys. From such venous blood they obtained a pressor substance with definite chemical characteristics. The same substance could be obtained by incubating blood-serum or its pseudo-globulin fraction for 15 minutes at 37° C. with the kidney protein renin. It is different from adrenalin, tyramin, pitressin or urohypertensin, and Muñoz and his colleagues think that it is liberated by the proteolytic enzyme renin from the pseudo-globulin fraction of the blood-serum.

THE ALIEN DOCTOR IN FRANCE

A PERUSAL of the French medical press since the outbreak of the war leaves no doubt as to the intensity of the feelings of mobilised French doctors towards the many aliens who, having acquired the right to practise in France but not being naturalised, are free to absorb the practices of their French colleagues called up for military service. In *Concours Médical* for Nov. 12 Dr. G. Lavallée addresses an open letter to these alien doctors. He suggests that they can find expression for their gratitude to the French hospitality they have enjoyed by serving in the army. He adds that, if this advice is neglected, he sees no reason why the first French doctor to return home should not settle accounts by a well planted kick "au derrière."

NEW PREPARATIONS

PHYTOFEROL is a standardised solution of vitamin E made available for medicinal use in capsules by British Drug Houses Ltd. (London, N.1), each capsule containing the equivalent of 3 mg. of synthetic *dl*-α tocopherol. Originally prescribed for the treatment of sterility, vitamin E has proved more valuable for the prevention of abortion. Administration during pregnancy may mitigate or even eliminate minor symptoms of toxæmia.

VI-SIBLIN (Parke, Davis and Co., London, W.1) is a palatable granular preparation, having as its base the highly water-absorbent material from a species of plantago into which is incorporated a definite amount of crystalline vitamin B_1. The preparation is designed to overcome constipation due to the consumption of foods so refined as to be deficient in this vitamin or due to the preference for diets which leave insufficient residue to excite adequate peristalsis. The species of plantago from which Vi-Siblin is prepared has the power of absorbing more than thirty times its volume of water and the gelatinous mass thus formed is non-irritating and unaffected by the digestive ferments. The addition of vitamin B_1 is designed to increase the tonus of the intestinal musculature.

ALBUCID (Schering Ltd., 185 High Holborn, London, W.C.1) is an acetyl derivative of sulphanilamide in which the acetyl radical replaces one of the two hydrogen atoms in the sulphamido group. Its chemical formula is p-aminobenzenesulphonacetamide, and it has been well tolerated when given by the mouth both in acute and chronic cases of gonorrhœa. It is presented in the form of tablets.

SULPHONAMIDE-P OINTMENT (A. & H.) contains a 5 per cent. solution of p-aminobenzenesulphonamide incorporated in a readily absorbable base from which it will not crystallise. It is intended for the treatment of superficial streptococcal infections, including wounds, ulcers, whitlows and impetigo. The ointment is put up in collapsible tubes by Allen and Hanburys Ltd. (London, E.2).

Malted Milk Tablets. Allenburys Malted Milk (Allen and Hanburys Ltd., London, E 2) is now available in tablet form. The tablets are not intended to replace the preparation in its original form for ordinary domestic use but to render it accessible during travel or an emergency.

Dimol Antiseptic Solution is ready for immediate use at first-aid and ambulance posts for stopping bleeding and sterilising wounds. Dimethylomethoxyphenol (dimol) is a synthetic benzene derivative in which the phenol group is linked to the chemical ring and from which phenol is not liberated. It is free from causticity and may be applied to the most delicate skin. It is claimed that the solution applied to a wound in the appropriate manner will stop bleeding immediately without any smarting. The makers are Dimol Laboratories Ltd. (London, E C.4).

A booklet dealing with the clinical application of Œstroform and Progestin B D H. in relation to menstruation and pregnancy has been issued by British Drug Houses Ltd. (London, N.1). It contains a helpful summary in diagrammatic form of the method of application of the natural œstrogenic hormone, Œstroform, and of the natural corpus-luteum hormone, Progestin, and the various indications for their use.

The Perihel-Mixray Sun Lamp (Atlas Exporters and Importers Ltd , 24, Holborn, London, E.C 1) is claimed to produce the same health-giving rays as the sun. There is (1) a generator producing a wide range of ultraviolet rays ; the bulb is made of special glass through which rays down to 2250 A can penetrate freely ; (2) an infrared element giving non-glowing rays of wave-lengths above 8000 A. Separate switches are provided so that the infrared unit may be used alone for rheumatic conditions. The appliance is made in two models, one for the table and the other for the floor.

“ . 9 January 1915 ‘French and German soldiers who had fraternised between the trenches at Christmas subsequently refused to fire on one another and had to be removed and replaced by other men.’ Amid the vast stream of war news which nowadays flows all over our newspapers I chanced to find that little paragraph in a corner of an evening journal. It seems to me the most important item of news I have read since the war began ”—Havelock Ellis in Selected Essays, Everyman edition, 1936.

The Lancet 100 Years Ago

Dec 21, 1839, *p* 488

From the correspondence column

A correspondent informs us that the *Bristol Mercury*, of December 7th, contains a report of an inquest, held at the Infirmary in Bristol, on the body of a girl who had died on the next day after taking an “overdose” of prussic acid, on which occasion the verdict returned was “Died of disease of the chest” We shall feel obliged to any friend who will forward to us a copy of the newspaper, with or without additional information on the facts of the case ; or information on the subject without the paper, if the latter be not procurable

A Pupil of King's College —No redress can be obtained The money has been pocketed, and certainly would not be refunded

We cannot find room for the rejoinder of *Mr Hytche*

We cannot see the point of the letter signed an “*Un-experienced Practitioner*”

The communication of *Dr Favell* has been in type for the last three weeks, but we have been compelled to postpone its publication from want of room

Mr Abraham Banks has forgotten to attach his address to his polite communication.

Appointments

Bradshaw, D. B., M.B Dubl , D P H , assistant school medical officer for Huddersfield

Bower, Irene M., M.B Manc., resident house-surgeon at the Royal Manchester Children's Hospital, Pendlebury

Franklin-Adams, Joan, M B Lond , assistant school medical officer for Huddersfield

Heap, M J McKenzie, M R C S , resident medical officer at the Royal Manchester Children's Hospital, Pendlebury

Strange, F G St Clair, F R C S , resident surgical officer at the General Hospital, Newcastle-on-Tyne

Sutherland, Margaret E , M B Lond , assistant medical officer for maternity and child-welfare work for Nottingham

Examining Surgeons under the Factories Act, 1937 . Dr. J. E R. Palmer (Mevagissey district, Cornwall) , and Dr Edward Johnson (Cranborne district, Dorset)

Vacancies

Birmingham, Romsley Hill Sanatorium —Res asst M O , at rate of £240

Bury County Borough —Asst M O H , at rate of £550

Cambridge, Addenbrone Hosp —H S , also H S to Special Depts , each at rate of £130

Chelsea Hosp for Women, Dovehouse Street, S W.3 —Surgeon Also two H S 's, each £130

Elizabeth Garrett Anderson Hosp , Eusion Road, N W 1 —Two H P 's, res anæsthetist, sen H S , and three H S 's, each £100 (minimum)

Lincoln City —Asst M O H , £500

Liverpool, County Mental Hosp , Rainhill —Deputy med supt , £800

London Chest Hosp., Victoria Park E 2 —H.P at rate of £100.

London County Council —Asst M O for mental health services, £470

Manchester, County Mental Hosp , Prestwich —Med supt , £950.

Manchester, Victoria Memorial Jewish Hosp , Cheetham —Res surg O , £200

Mansfield and District General Hosp —H S , at rate of £150.

South Shields County Borough —Asst M O , £500

St Mary's Hosp , W 2 —Sen and jun asst radiologists, £125 and £75 respectively

Truro, Royal Cornwall Infirmary —Hon ear, nose, and throat surgeon

Wakefield City —Jun asst M O , £500

The Chief Inspector of Factories announces vacancies for examining surgeons at Wollaston, Northampton , Yarmouth (I of W), Southampton ; and Balfron, Stirling.

Births, Marriages and Deaths

BIRTHS

Macdonald —On Dec 13, at Birmingham, the wife of Lieutenant W. T. Macdonald, R.A M C.—a daughter

Nash —On Dec 10, at Cranwell, the wife of Squadron-Leader D. F Ellison Nash, F.R C S , R.A F V R —a son

Preston —On Dec 15, at Eastbourne, to Margaret, wife of Lieut -Colonel T. W. Preston, M D., R.A M C —a son.

Richardson —On Dec 17, at Southampton, the wife of Mr. L. A. Richardson, F R C.S —a son

MARRIAGES

Bishop—Smith —On Dec 12, at Shifnal, Salop, John Colin Bishop, M B , R A M C , to Eveline Anne Smith, of Ealing

Thomson—Miller —On Dec 14, at Ballycastle, co Antrim, Edmund John Thomson, M C , M B , to Janet Grace Miller

Willox—Brock —On Dec. 15, in Glasgow, Leonard Stephen Willox, M D , of London, to Nannie Brock, of Dumbarton

DEATHS

Butcher —On Dec 12, at Worthing, William James Butcher, M R C S , D P H , aged 61

Cairns —On Dec 16, at Lahore, India, James Cairns, C I E , O B E , M B Glasg , chief medical and health officer, North-Western Railway, India.

Davies —On Dec 11, at Aberayron, Cardiganshire, David Morgan Davies, M D. Lond , aged 59.

McGowan —On Dec 16, in Belfast, William McGowan, M D , R U I , in his 98th year, sometime medical officer of Maghera, co Derry

Tait —On Dec 14, in London, Edward Sabine Tait, M D Lond., aged 83

Tait —On Dec 13, at Alverstoke, Hants, Deputy Surgeon General William Tait, M B Edin , R N retd , aged 84.

Mr Ingleby Oddie, the Westminster coroner, has retired on reaching the age-limit of 70 He has been a coroner for 27½ years and has held 20,000 inquests

ADDRESSES AND ORIGINAL ARTICLES

ELECTRIC-CONVULSION THERAPY OF SCHIZOPHRENIA

By G W T H Fleming, M R C S, D P M
PHYSICIAN SUPERINTENDENT OF BARNWOOD HOUSE GLOUCESTER

F L Golla, M B Oxfd, F R C P

AND

W Grey Walter, M A Camb

(From the Burden Neurological Institute and Barnwood House Mental Hospital, Gloucester)

The relative electrical accessibility of the brain was first realised when it became known that its electrical activity could be detected from the surface of the intact scalp as the electro encephalogram This fact has caused considerable speculation as to whether the process might be reversed—i e, whether the human brain might be stimulated electrically merely by placing electrodes on the surface of the head If we compare the brain potentials as led off directly from the cortex with the size of those led off with electrodes on the scalp, we find that the electrical resistance network made up by the scalp skull, and meninges attenuates the brain potentials by approximately a hundredfold Thus it may be computed that, to obtain an adequate stimulus for the cortex, the potential applied to the scalp must be of the order of 100 volts, and, since the resistance across the head averages 500 ohms, with electrodes 2 in in diameter the current which may be expected to pass through the head would be of the order of 200 milliamps With these figures as ineluctable data, it is not at all surprising that for some while no one had the temerity to perform such an experiment on a human being A current of 1 milliamp is easily felt and one of 10 milliamps is very painful, for the cortex to be stimulated the overlying tissues must be subjected to an unbearably strong current Moreover the effect of these tissues is also to spread out the lines of current flow, so that even with small electrodes the area of brain stimulated is comparatively large, if the object of the stimulation were merely exploratory, the result would be a painful disappointment

Cerletti and Bini (1938) reported that the passage of a strong alternating current through the head usually resulted *not* in a so called cortical movement or sensation but in immediate unconsciousness followed by a prolonged fit They patiently worked out a technique whereby this phenomenon could be used to replace the injection of convulsant drugs in the treatment of schizophrenia Cerletti and Bini have administered shocks to several hundred patients, no untoward results are reported and the remission rate is claimed to be the same as that obtained with Cardiazol Sogliani (1939a and b), using a slightly different technique, reports similar results, as does Fumarola (1939) Up to 30 fits are given to each patient, but if there is going to be a remission, improvement is usually obvious after the first few fits It is possible to induce 4 to 5 fits in a single session without apparent ill effects, when this is done, the patient passes into a deep sleep for several hours

To test these claims we performed several preliminary experiments and satisfied ourselves that convulsions could be produced by stimulation of the frontal lobes without risk of causing any nervous lesion We selected five psychotics for treatment at Barnwood House Altogether 75 shocks have been administered, as a result of which there have been 50 major convulsions and 25 minor attacks There have been no unpleasant sequelæ, and none of the patients has refused further treatment This small preliminary series was not intended to provide data on the therapeutic value of the treatment—in only one of the patients could a remission be hoped for with any confidence—but was designed to throw light on the relative advantages and dangers of the method

TECHNIQUE

Apparatus was designed to provide electrical conditions identical with those recommended by the Italian workers It was constructed in portable form with the assistance of the Edison Swan Electric Co., Ltd For convenience, alternating current from the mains is used, controlled by suitable transformers, meters, and switches (fig 1) The current is applied to the head with large pad electrodes moistened with a strong salt solution and held tightly on the head in the frontal region with a band or clamp The area of the electrodes is about 20 sq cm, so that the current density at any one point is too low to damage the skin The essence of the method is that, after standardisation of the conditions, the convulsant current is switched on by a special mechanism for only a fraction of a second Cerletti and Bini (1938) use $\frac{1}{10}$–1 sec, Sogliani (1939a and b) maintains the current constant and varies the duration from $\frac{1}{5}$ to 2 sec The design of the time switch must be such that only the exact duration decided on can be given, and it must be impossible to give two shocks in rapid succession

The procedure is as follows With the electrodes in place, the low-tension circuit is switched on The voltage of this is adjusted until a current of 1 milliamp flows through the head The voltage is then read, and from this the resistance of the head circuit is readily calculated It has been found to vary from 450 to 1200 ohms in different patients but is fairly constant in any one person A resistance higher than 1200 ohms indicates a faulty electrode contact, and it is chiefly in order to guard against this that the preliminary measurements are made, they take only a few seconds The leads to the patient are then switched over to the high tension circuit, the voltage of which is adjusted to correspond with the head resistance A satisfactory fit is induced with 80–150 volts, but considerable overdosage seems to cause little harm Any exact calculation, as Cerletti points out, is useless, for living tissues do not obey Ohm's law over a wide range of current strengths, and after the passage of the strong current the resistance is always much lower than before, a 30 per cent fall being common As a rule the current flow is about twice as great as would have been expected, about 300 milliamps appear to be the convulsion threshold When the voltage has been adjusted, the impulse timer is released and the shock thereby administered

The course of events from this moment depends on whether the stimulus is of convulsant strength If it is not, the patient gives a sudden start and becomes unconscious for a few seconds Recovery may take place in a few minutes or may be accompanied by confusion or [illegible] The memory of the preliminaries is faint and fades as rapidly as a dream, that of the shock is entirely absent and we have no reason to suppose that it was felt [illegible] the patients of "flickering" and "electric sensations" are traceable to their feeling the small standardising current

With currents above the convulsion threshold the violent start which occurs with the shock and is probably the result of direct stimulation of the precentral gyri is accompanied as before by immediate loss of consciousness. The limbs and body partially flex, and the mouth opens At this point a gag should be inserted. Usually this phase, which is the start of the convulsion proper, follows directly on the shock with a latency of only a few seconds, but on three occasions the latency has been much longer: in one patient 15 and 30 sec. and in another 10 sec When the latency is as long as this, the patient has lain completely still, and on one occasion apnœic, until the onset of the tonic phase of the fit This starts in the same way as any other fit, spontaneous or induced The limbs are violently extended and the jaw clenched. Tonus passes gradually into clonus, starting with rapid jerks of the whole body, which become well defined 10–15 sec after the onset of the fit. The jerks become less frequent, and the convulsion usually lasts about 40 sec altogether. The patient by the end is deeply cyanosed, and profuse salivation is the rule Premedication with atropine is desirable in some cases We have not so far observed incontinence or ejaculation, though these have been described by the Italian workers. Vomiting has occurred twice

For about 10 min after the termination of the seizure the patient is inaccessible, and during this phase the behaviour is extremely characteristic for each patient One patient was always restless, plucked at the bed-clothes and fumbled with the genitalia; another after a few movements dropped quietly off to sleep, another passed straight into a deep sleep and snored violently, another, who was treated chiefly by minor fits, talked incoherently about a certain town and her family. This extremely individual post-epileptic phase is perhaps one of the most remarkable phenomena associated with the treatment When the patient has become fully conscious, there is no distinct memory of the shock. Recovery is complete in 10–30 min In violence the electric fit may be considered as resembling more nearly a true epileptic seizure than one induced by cardiazol. It is extremely unlikely that a dislocation or a fracture could take place with the electric fit, as has occasionally been reported with cardiazol

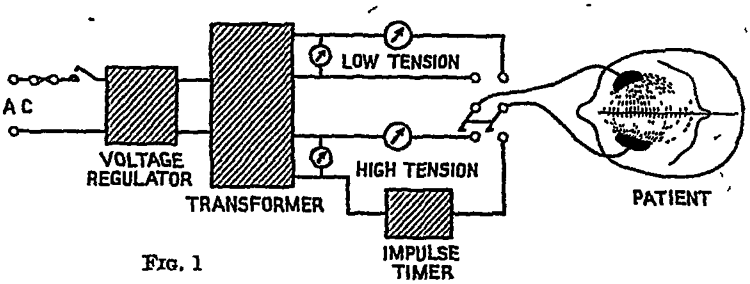


FIG. 1

Schematic arrangement of apparatus used in electric-convulsion therapy.

ELECTRO-ENCEPHALOGRAPHY

Electro-encephalograms (fig. 2) were taken from two patients in the course of treatment Owing to the relatively gigantic proportions of the electric shock, no record could be obtained for 20 sec after the stimulus, for the passage of this enormous current turns the head for the time being into something resembling an electric battery, and the polarisation long outlasts the duration of the shock. From what could be seen the electrical accompaniments of the fit are identical with those during a spontaneous seizure or in one induced by cardiazol. For about 10 sec. after the end of the fit there are very few cortical potentials detectable, but then large slow waves appear over the whole surface of the head, the potential rises in about 30 sec to several hundred microvolts, the frequency being 1–2 per sec and the form irregular, resembling the electro-encephalogram during deep natural sleep. This generalised slow discharge becomes progressively more regular, more rapid, and smaller, until about half an hour after the end of the seizure the electro-encephalogram shows only waves resembling the normal alpha rhythm in frequency and size, although the area from which these arise is larger than in the normal person. The patient from whom the records in fig. 2 were taken also showed some slow waves It is important to notice that, although the two patients studied from this standpoint differed greatly in their psychological behaviour after the fit, the records of the two are almost indistinguishable from one another. The return of the normal reflex pattern paralleled the decline of the abnormal features in the electro-encephalogram

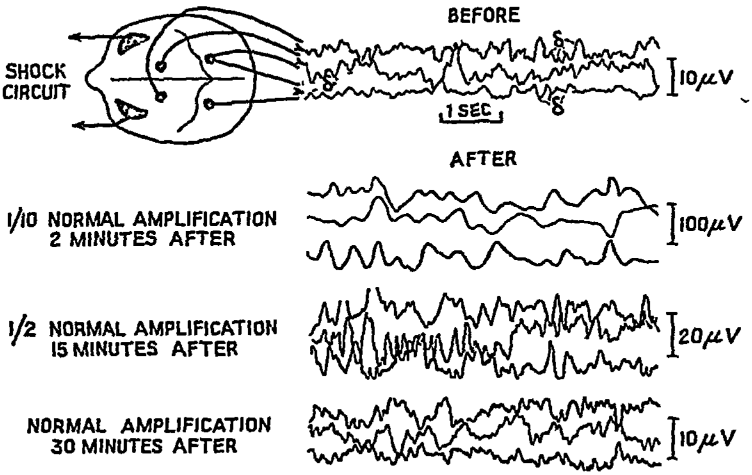


FIG. 2—Electro-encephalograms taken from one of the patients before and at various intervals after a convulsion The time scale for all the records is shown in the first one The amplification is reduced in the two middle records The record taken before the convulsion is not entirely normal but shows diffuse delta waves (δ) such as are sometimes found in schizophrenia.

DISCUSSION

It is not proposed to discuss here the therapeutic results of electro-convulsion therapy; it must stand or fall by the ultimate verdict on shock therapy in general. From the technical point of view there can be no doubt that the electrical method is greatly superior to any hitherto employed for the production of severe convulsions. For the operator, only a small amount of training and experience is necessary, and a knowledge of physics, though desirable on general grounds is not essential It was thought at first that the conditions for insuring a fit in safety would be very critical but this does not appear to be so, and it is possible that the method may eventually be made simpler than the one described here In any case the apparatus is comparatively cheap and portable,* and preparation of the patient need take no more than a minute

The psychological reaction of the patient is mild The absence of pain and fear can be accounted for by supposing that [illegible] on the brain is instantaneously stunned [illegible] so that the pain impulses set up in the [illegible] the thalamic centres too late to be [illegible] integrated The absence of a powerful psychological reaction might in the view of some [illegible] detract from the value of the treatment [illegible] from the results obtained in Italy, the [illegible] and the greater degree of cooperation [illegible] from the patients outweighs this [illegible] which in any case is entirely speculative

The exact mechanism [illegible] the convulsion is produced is not clear [illegible] known that repeated powerful stimulation of the [illegible] exposed at operations can cause generalised convulsions and a shock consisting of 50 [illegible] alternating current lasting for ¼ sec (which has been found [illegible] for most patients) is equivalent to [illegible] stimuli Assuming that it is the negative [illegible] which stimulates, each hemisphere will receive over a large area ten supramaximal stimuli Since in some cases the fit is delayed for several seconds we must suppose that this vigorous stimulation sets up in the premotor cortex some process—possibly analogous to the resting slow discharges seen in the electro-encephalogram of idiopathic epileptics (Golla, Graham, and Walter 1937)—which, when it involves a sufficiently large area, "touches off" the whole motor apparatus of the central nervous system There may be great significance in the statement of Cerletti and Bini (1938) that, to obtain the most satisfactory results, the current should pass through the area 6aβ of Vogt in the middle part of the superior and middle frontal gyri, to which Foerster (1936) assigns a special function in the pathogenesis of epilepsy, and which is particularly liable to contain a focus of slow waves in idiopathic epilepsy It may not be too much to hope that from the technique of electro-convulsion therapy a new tool can be forged to aid the clinical physiologist in the study of epilepsy

From the scientific standpoint the conditions are far from simple, there are no less than eight distinct variables—potential, current, resistance, frequency, wave form, and duration, together with size and position of the electrodes The method is likely to raise as many problems as it can be used to solve, but for the present there can be little doubt that it is a valuable alternative to cardiazol in the convulsion therapy of schizophrenia

SUMMARY

(1) The method devised by Cerletti and Bini (1938) of inducing major convulsions by electric stimulation of the brain has been tested on five schizophrenic patients

(2) We have administered 75 shocks, as a result of which there have been 50 major convulsions and 25 minor seizures. The major convulsions are similar to spontaneous ones and are followed by complete amnesia for the shock

(3) No untoward results have been observed.

(4) The claims of Cerletti and Bini are confirmed. the method is technically effective simple, and safe and arouses no fear or hostility in the patients.

(5) No attempt is made to assess the therapeutic value of the method which Cerletti and Bini state is the same as that of cardiazol

REFERENCES

Cerletti, U., and Bini, L. (1938) *[illegible]* 64, 38
Foerster, O. (1936) Handbuch der Neurologie, Berlin
Fumarola, C (1939) *[illegible]* 41 [illegible]
Golla, F. L., Graham, S., and Walter, W. G. (1937) *J. ment. Sci.* 83, 137
Sogliani, G. (1939a) *[illegible]* 28 [illegible]
— (1939b) *[illegible]* 65 [illegible]

THE DARK-ADAPTATION TEST

ITS RELIABILITY AS A TEST FOR VITAMIN-A DEFICIENCY

By Leslie J. Harris, Sc.D., D.Sc., Ph.D., F.I.C.
AND
M. A. Abbasy, Ph.D., M.B.
NOW LECTURER IN NUTRITION, DEPARTMENT OF HYGIENE AND PREVENTIVE MEDICINE, UNIVERSITY OF CAIRO

(From the Nutritional Laboratory, University of Cambridge and Medical Research Council)

(Concluded from p. 1305)

PERHAPS the most significant result of the experiments was the finding that the subnormal subjects in the poorly fed group slowly became normal when vitamin A was given in large doses but not otherwise A second result, which is perhaps of equal interest, was the difference between the poorly-fed group of children and the well-fed controls at the institute

Three principal points seem to present themselves for discussion (1) the reliability or otherwise of dark-adaptation tests for detecting a deficiency of vitamin A (2) the possibility of improving the technique and (3) the incidence of deficiency

RELIABILITY OF DARK-ADAPTATION TESTS

Although (as has already been made plain and will be discussed in greater detail below) the technique of the dark-adaptation test is capable of further refinement, at the same time a good deal of evidence can now be adduced to support the view that there is indeed a positive correlation between vitamin-A deficiency and subnormal adaptation First, there is the difference found in the incidence of subnormal adaptation between the children on the poor dietaries and those on the good Secondly there is the evidence of the control tests on the subnormal children Thirdly, [illegible] (1938) pointed out that in our earlier surveys (Maitra and Harris 1937) there had been a correlation between increased consumption of milk and diminished incidence of dysadaptation

"Opportunity was taken by me to correlate the result of Dr. Harris' research with the sale [illegible] of milk in school to the children The results of this correlation are given below [illegible] Of the [illegible] children on doctor's milk ([illegible] a pint per day at school) [illegible] per cent were found by Dr. Leslie Harris to be normal, while of those not on doctor's milk only [illegible] per cent were found normal [illegible] It may be deduced from these figures that the [illegible] two-thirds of a pint of milk in school goes far to [illegible] the children and the results justify the practice which the school medical officer has always [illegible] upon, that children appearing ill-nourished should have two bottles and not one only."

---

* Arrangements have been made for the manufacture of suitable apparatus by the Edison Swan Electric Co., Charing Cross Road, London

Lastly, it is convenient to consider here the work of other investigators, already referred to more briefly in the introduction and nearly all of which has appeared since the publication of our preliminary report (Abbasy and Harris 1938). The most important arguments to be deduced in this connexion seem to be the following:—(1) Several workers have produced subnormal dark-adaptation experimentally in volunteers by administering diets low in vitamin A and have shown that it can be cured intermittently or allowed to relapse according to whether vitamin A is given or withheld. (2) Spontaneously occurring dysadaptation is similarly related to vitamin A. (3) A fall in the vitamin-A content of the blood-serum below a certain critical level has been accompanied invariably by diminished powers of dark-adaptation. (4) In experimental animals it has been demonstrated that nyctalopia is a specific symptom of vitamin-A deficiency.

(1) *Experimental dysadaptation and its cure.*—Booher et al. (1939) kept five subjects on a diet low in vitamin A and, measuring the dark-adaptation with Hecht and Shlaer's photometer, found that pronounced symptoms of deficiency developed in 16–39 days (or 124 days for one subject); the requirement for vitamin A was estimated to be 25–51 I.U. per kg., and carotene was found to be only 50–60 per cent. as effective (43–103 I.U. per kg.). With the same instrument Wald, Jeghers, and Arminio (1938) showed that the first effect of an A-deficient diet might be detected within 24 hours, and that in 25 days the threshold value for the rods had become fifty times the normal and for the cones four times—repeated temporary cures followed intermittent treatment with vitamin A.

A similar account of an experiment conducted on himself was reported by Jeghers (1937), who used the biophotometer and found evidence of dysadaptation after 6 days and of pronounced deficiency after 17–31 days; the requirements were estimated to be 4000 I.U. daily, and 100,000 I.U. gave a rapid cure.

Working with the Hecht-Shlaer instrument Hecht and Mandelbaum (1938) produced experimental dysadaptation in a volunteer kept on a deficient diet: vitamin A brought about first a rapid and later a more gradual improvement. In a subsequent report Hecht and Mandelbaum (1939) show, from tests on four young men taken as volunteers, that "the presence of a dietary avitaminosis becomes evident after the very first day of the absence of vitamin A in the diet . . . in less than a week a conclusion of decreased visual function can be reached with reasonable certainty." They conclude: "As a result of these observations we feel certain that measurement of dark-adaptation when carried out under properly standardised conditions can be used as an aid in the determination of the vitamin A condition of the body. Normal dark adaptation means a normal vitamin A content of the body, and an abnormal dark adaptation means a disturbance of the vitamin A content."

Proof of intermittent cures and relapses have been reported also by Edmund and Clemmesen (1936, 1937), who noted an effect 7 min. after an intramuscular injection of vitamin A. A further report of experimental dysadaptation in a volunteer is given by Pett (1938). Other writers have reported improved readings after treatment with vitamin A, including Schettler et al. (1939) and Frandsen (1937); and the following have had success either in all or in a proportion of their cases: Park (1935, 1936), Friderichsen and Edmund (1937), Outhouse and Meyer (1936), Friderichsen (1936), Corlette et al. (1938), Haines (1938), Groth Petersen (1938), Juhász-Schäffer (1938), and Gantzel (1938).

(2) *Non-experimental dysadaptation and vitamin A.*—McKenzie (1938, 1939), using Tscherning glasses and Edmund test-types showed that low dark-adaptation values, common among East African natives, could be cured with vitamin A, the index quickly rising from 4 to 14, whereas untreated controls remained unchanged. The requirement for vitamin A was about 3000 I.U. daily, carotene being only a third to a fifth as effective.

Bigwood (1939), in a population study in Brussels, similarly concluded that with a daily intake of over 3500 I.U. of vitamin A adaptation was good, whereas below 1000 I.U. it was bad.

Getz et al. (1939), in America, found that 5–11 per cent. of normal college students had low adaptation values and improved after treatment with vitamin A given as halibut-liver oil; but doses much above those generally advocated were necessary for sufficiently prompt cure—e.g., up to 200,000 I.U. daily. On the other hand, 53 per cent. of tuberculous patients were found to be deficient. Drigalski et al. (1939), in Germany, noted a high incidence of subnormal adaptation among sick persons and pregnant women, and the total amount of vitamin A needed to restore vision to normal was 72,000–300,000 I.U. In Scandinavia low adaptation values, seen in a large proportion of school-children, were also improved by administration of vitamin A (Abramson and Oigaard (1939)).

Dysadaptation developing in disease as a result, presumably, of faulty utilisation or absorption of the vitamin has also been recorded by various workers (Lindqvist 1938, Haig, Hecht, and Patek 1938, Higgins 1937, Edmund and Clemmesen 1936, Ezickson and Feldman 1937, Gantzel 1938, Juhász-Schaffer 1938).

(3) *Correlation between dysadaptation and blood-level.*—Lindqvist (1938) has found that, whenever the vitamin A in the blood falls below a level of 70 I.U. per 100 c.cm. of serum, dysadaptation invariably develops. An intake of vitamin A which is sufficient to keep the blood level at or above 110 he regards as normal, 100–70 as questionable, and less than 70 as definitely deficient. Above the level of 100 I.U. per 100 c.cm. there is no relation to dysadaptation. A similar correlation between serum level and adaptation is found by Juhász-Schäffer (1938) who, like ourselves, used the Birch-Hirschfeld instrument for the visual test. Pies and Wendt (1939) observed dysadaptation with serum values of less than 0·4 "blue-units."

(4) *Dysadaptation in experimental animals.*—Impaired vision in a dim light after deprivation of vitamin A has been reported for several species of animals no less than for human beings. One of the most recent papers is by L. A. Moore (1939), who has shown that in calves "papillary œdema (causing constriction of the optic nerve) and nyctalopia are separate processes but both are due to vitamin-A deficiency."

Negative findings.—As opposed to the general trend of most reports, sufficiently well indicated by the foregoing brief review, a small minority of workers have recorded their dissatisfaction with dark-adaptation tests. The chief criticism, however, has been regarding the use of the Jeans-Zentmire biophotometer. One criticism runs: "These results do not necessarily mean that there is no correspondence between dark adaptation and vitamin-A deficiency, but that the biophotometric test as generally used needs far more study before it can be used as a method for detecting vitamin-A deficiency" (Isaacs et al. 1938). We incline to the view that certain of the criticisms against the biophotometer are well founded and indicate weak points in its design, or perhaps it would be fairer to say that dark-adaptation tests need to be more carefully controlled and standardised than has always been realised hitherto. Even so, several workers have concluded that reliable results are possible with the biophotometer if suitable precautions are taken. Thus Booher and Williams

(1938) consider that, provided it is calibrated frequently, the instrument is adequate for measuring marked dysadaptation in adults, and similar views are expressed by Corlette et al (1938) Gridgeman and Wilkinson (1938) recommend a new procedure for its use and Schottler et al (1939) express themselves as highly satisfied with their results

It is more difficult to explain the difference between our results, indicating a correlation between dark-adaptation and vitamin A, and those of the workers at the Rowett Institute (Thomson et al 1939), who, using a new and specially designed instrument, are unable to find any clear correlation Two fairly obvious suggestions might be considered here—either that the explanation lies somewhere in the considerable differences in procedure (see below), or that relatively few of the subjects examined by the Rowett workers were so low in their intake of vitamin A as those in our "poor" group of school children Yet we must recall that Stewart (1939) using this same Rowett instrument, has found that subjects given sufficiently large doses of vitamin A did in fact nearly always improve, especially if they were originally subnormal and that "good adaptation was invariably shown by subjects with good intake of vitamins A and C" This suggestion of a reinforcing action of vitamin C is of interest, especially in view of similar hints in earlier reports (FridericHsen and Edmund 1937) It may be noted that our "well fed" group of children in the home for waifs and strays were in receipt of ample vitamin C besides vitamin A (Ahmad and Harris 1938)

According to Kimble and Gordon (1939) riboflavin may be another factor which like ascorbic acid, can aid the utilisation of vitamin A They found that "individuals who show low normal or pathologically deficient biophotometer readings, and low blood vitamin-A levels, can usually be restored to the normal range by the administration of vitamin-A concentrates" A few, however proved refractory to treatment with vitamin A alone and were given riboflavin plus vitamin A The combination immediately restored the biophotometer readings and blood to normal, when the vitamin A alone had failed to do so In some other individuals in whom riboflavin failed to produce this result, ascorbic acid caused satisfactory improvement"

Confirmatory work is needed to test the suggestion of a *reinforcing* action for these and other substances

One of the most obvious differences of technique between our method and that of the Rowett workers is that we omit the preliminary variable period of dark adaptation before "bleaching." This may possibly explain the lower incidence of subnormality found by them, for the effect of giving a more prolonged period in the dark to the deficient than to the normal subjects may be expected to operate in the direction of diminishing any differences observed between normal and subnormal It is impossible to give a final explanation of the difference between our conclusions and those of the Rowett workers until further work has been undertaken to investigate these several points

IMPROVEMENT OF TECHNIQUE

In future work measurements of dark adaptation should be linked with estimates of vitamin A in the blood-serum for the investigations of Lindqvist (1938) and of others referred to above have indicated that any intake of vitamin A which is inadequate to keep the serum level above a certain critical value inevitably leads to a fall in the dark adaptation Thus a useful check can be had on the significance of the dark adaptation results We have already dealt with some of the precautions which seem to be desirable in the technique, such as the need for adequate standardised, and wide-angle "bleaching", the repeated rechecking of each subject; and the division of both the normal and the deficient subjects into treated and untreated control groups This overcomes the fallacy of centripetal drift, mentioned by Jung (1938) Probably the most satisfactory way of determining whether or not a given subject is normal or subnormal is, after having found his normal range of variations by a few days' preliminary measurements to ascertain whether these readings improve during a course of intensive treatment with vitamin A for which purpose a minimum of two weeks' treatment is necessary and a period of two months to be desired (Note the relatively slow rate of cure in some instances in fig 4) Tests of this kind are needed for establishing the usual range of normality in children

The special improvements contemplated on our earlier procedure include the provision of finer graduations between the readings representing the limits of normality and deficiency—i e, diaphragm readings of 4 and 6 respectively at the 10 min reading—and the calibration of light readings in absolute units Under the conditions of their respective techniques, Lindqvist (1938) regards a dark adaptation value of 0 00004 lux as normal up to 20 years and 0 00005 above that age, and Corlette et al (1938) consider 0 70 millifoot candle as the lower limit A further point is the advantage of tracing a complete adaptation curve for each subject instead of being satisfied with one or two readings only The photometer described by Hecht and Shlaer (1938) seems to meet very satisfactorily the requirements just touched on and has various other advantages, such as the separation of cone vision from rod vision In the past few months newer instruments have been devised by various other workers including Pett (1938) Ditchburn (1939), Haines (1938), and Thomson et al (1939)

One general comment seems to be called for Although we feel that the weight of the evidence indicates that a deficiency of vitamin A can be satisfactorily detected by dark adaptation tests, the procedure (if it is to be reliable) is difficult and intricate and is therefore not suitable for routine surveys on large groups of children by school medical officers At the present stage it is rather a test for the specialised research worker which can be applied to selected samples of the population, to corroborate the results of budgetary surveys or to confirm suspected deficiency in the clinic Further, it is not always realised that the dark adaptation test is a test for active deficiency only and does not enable normal cases to be graded and distinguished according to whether they are approaching the border line of deficiency or have low, moderate or good reserves of the vitamin In this respect it has to be contrasted with saturation tests on the urine for vitamins C and B_1

ESTIMATES OF INCIDENCE OF DEFICIENCY

Of the 30 well fed children at the home, receiving plenty of milk and fish liver oil 29 were normal On the other hand of the 100 poor-class children attending elementary schools 43 were normal and 57 below standard (the latter being made up of 34 "slightly below normal" and 23 "definitely subnormal") The figures for these school children are not dissimilar from those found in the previous survey (see [illegible] Maltra and Harris 1937) These figures must be regarded as qualitative trends rather than as exact quantitative comparisons [illegible] our school data must await the development of improved technique. Yet the indications of a high order of incidence of subnormality need not be surprising, in view of the reputed requirements for vitamin A and the fairly obvious fact that many of these children must have been well below such a standard in their intake

TABLE VI—ESTIMATED INCIDENCE OF VITAMIN-A DEFICIENCY AMONG SCHOOL-CHILDREN, AGED 11–13, AND ADULTS

Diet	Subjects		No examined	Normal	"Slightly below normal"	"Definitely sub-normal"
				No and per cent		
Poor working-class	Boys and girls	School treatment centre, East London	31	14 (45)	6 (19)	11 (36)
		Council-school clinic, Cambridge	70	31 (44)	17 (25)	22 (31)
		Council school, East London	92	37 (40)	35 (38)	20 (22)
	Boys	Council school, poor district in Cambridge	100	43 (43)	34 (34)	23 (23)
Good average	Boys	Public school, Cambridge	30	27 (90)	3 (10)	0 (0)
Extra-good *		Home for waifs and strays, Cambridge	30	28 (93)	1 (3)	1 (3)
Working-class	Mothers (aged 25–35) Council schools, Cambridge		38	19 (50)	19 (50)	0 (0)
Middle-class	Male adults (aged 18–50) middle-class		25	21 (84)	3 (12)	1 (4)

* 1½ pints milk, fish-liver oil

Thus, according to the League of Nations Technical Commission (1938), "it is probable that 2000–4000 I U. daily may be regarded as a safe allowance [for adults] . . the requirements for infants and all growing children are relatively greater" If we assume that an allowance of about 2000 I U is desirable for a boy aged 13, it is clear that a considerable proportion of those in working-class populations fall below this level The principal sources of vitamin A in normal human diets in this country are butter, milk, green vegetables, and sometimes carrots Butter is rarely used in poor working-class areas, where margarine (generally devoid of vitamin A) is substituted for it; and, since the supply of green vegetables or of carrots is often irregular, the onus falls on the milk To supply 2000 I U. of vitamin A, about 1 litre (roughly 2 pints) of milk of average quality would be needed daily Official statistics (see Harris 1937) indicate that the consumption of milk in working-class homes is usually only a small fraction of this, many children receiving little beyond the ⅓ pint daily now commonly taken at school Those children receiving extra milk at school, (⅔ pint instead of ⅓ pint) had a lower incidence of vitamin-A deficiency (dysadaptation) than those on the lower allowances; and, when the intake was at the generous level of 1½ pints plus other foods rich in vitamin A (at the institution), virtually all the children were normal

We have not yet carried out any detailed systematic surveys on adults, but the suggestion of a lowered incidence of deficiency as compared with the poor-class children (table VI) seems in keeping with the results of Ellison and Moore (1937), who find that deficient reserves in the liver are commoner among children than among adults, and with the view that the needs of all animals for vitamin A are greater in childhood than in later life (see further Maitra and Harris 1937)

Since this paper was completed we have seen the review by Bigwood (1939), whose general conclusions are very similar to ours He writes ". . . it can be seen that (1) the test for latent hemeralopia is applicable to investigations in the field of social medicine, (2) it will yield useful information, although the exact technique has not yet been worked out in its final form, and (3) latent vitamin-A pre-deficiency can, even at this stage, be asserted to be frequent in many parts of our countries of Western civilisation, although its incidence cannot yet be reliably assessed in numerical terms."

SUMMARY

(1) An account is given of experiments (carried out in the winter of 1937) to reinvestigate the reliability of dark-adaptation tests for detecting deficiency of vitamin A. The Birch-Hirschfeld photometer was used, with several improvements in technique—e.g, a large screen was used for the "bleaching," and during the test the subject's attention was kept directed to the position of the quincunx

(2) Two precautions were taken, which are considered essential as a check to control the procedure Each subject was re-examined repeatedly, and the initial value not accepted until it had been found to remain relatively constant on successive occasions (to ascertain individual variations and to rule out the possibility of further improvement with practice) Secondly, to check the specificity of the result, subjects found to be subnormal were divided into two groups, half being treated with the vitamin and the other half kept as controls. The criterion accepted for subnormal dark-adaptation in these tests was a diaphragm reading of 6 or over (with wedge set at 5) after 10 min in the dark; the reading immediately after the "bleaching" was considered of less value, mainly because of its rapid rate of change

(3) Control tests indicate that, under the ordinary working conditions of our experiments, previous exposure to light had no important influence on the results. Among middle-class adults cases of lowered dark-adaptation seemed relatively rare, and readings were not improved beyond the usual normal by treatment with vitamin A

(4) The following evidence is offered that the method of the dark-adaptation test is sound in principle—

(*a*) Children found subnormal returned slowly to normal after treatment with large amounts of vitamin A, whereas an equal number of controls left untreated remained subnormal.

(*b*) Independent scrutiny by Menzies (1938) of our earlier results on children attending elementary schools revealed a hitherto unsuspected correlation with their individual dietary histories—among children having ⅔ pint of milk at school 67 per cent were normal on test, whereas of those having ⅓ pint or less only 37 per cent. were normal

(*c*) The incidence of lowered dark-adaptation among the various social classes examined in our surveys has also borne a relation to their dietary intake. Thus, in earlier work among poor-class children attending elementary schools in London and Cambridge roughly 40–50 per cent of the total were normal, 20–30 per cent. "slightly below normal," and a further 20–30 per cent "definitely deficient"; and similar values hold for the present test Among 30 better-fed boys at a public school, on the other hand, none were "definitely deficient," only 3 being "border line" and the remaining 27 normal; and at a home for waifs and strays, where the diet included 1½ pints of milk daily and fish-liver oil in winter, virtually all the boys were normal

(*d*) Attention is also drawn to the work of other investigators proving a correlation between deficient intake of vitamin A and lowered dark-adaptation

(5) It is concluded that the theoretical basis of the test is reliable although the apparatus and technique are capable of being further improved In view of the variable results obtained by other workers using different methods additional study is to be desired

(6) The dark adaptation test is only capable of detecting deficiency and not of assessing different levels of normality (cf urine "saturation" tests for vitamins C and B_1) Since the test is relatively intricate and needs experience and careful controlling, it is not suitable for rapid routine use by school medical officers It can have its application in surveys on small selected samples of the population to confirm the supposition of deficient dietary intakes or for diagnosis in the clinic Deficiency seems less common among adults than in children

Our thanks are due to Dr A F Smyth Mr W E H Billing, and Mr F W Palmer for their valued coöperation in providing us with facilities to examine the school-children, and to Messrs Crookes Laboratories for generous supplies of halibut liver oil

REFERENCES

Abbasy, M A and Harris L J (1938) *Chem Ind* 57, 86
Abramson E, and Olgaard H (1939) *Skand Arch Physiol* 82 19
Ahmad B and Harris L J (1938) *Chem Ind* 57, 1190
Bigwood E J (1939) Guiding Principles for Studies on the Nutrition of Populations Geneva p 19
Booher L E Callison E C Hewston E M and Loughlin R (1939) *J Nutrit* 17 suppl 10
— and Williams D E (1938) *Ibid* 16 143
Corlette M B Youmans J B Frank H and Corlette, M G (1938) *Amer J med Sci* 195 [illegible]
Ditchburn, R W (1939) *Nature Lond* 143 285
Drigalski W von Kunz H, and Schlüpmann, K (1939) *Klin Wschr* 18 87[illegible]
Edmund, C and Clemmesen S J (1936) *Acta med scand* 89 69
— — (1937) *Norsk hyg Tidsskr* 18 231
Ellison, J B and Moore T (1937) *Biochem J* 31 165
Erickson, W J and Feldman J B (1937) *J Amer Med Ass* 109 1706
Frandsen H (1937) *Acta Ophthal* 4 suppl 1
Friderichsen C (1936) *Acta paediatr* 18 37[illegible]
— and Edmund, C (1937) *Amer J Dis Child* 53, 89 1179
Gantzel T (1938) *Hospitalstidende* 81 85
Getz H R, Hildebrand G H and Finn M (1939) *J Amer med Ass* 112 1308
Gridgeman N T and Wilkinson H (1938) *Lancet*, 1 905
Groth-Petersen E (1938) *Acta med scand* 95 110
Haig C Hecht S and Patek A J (1938) *Science* 87 534
Haines R T M (1938) *Ophthal Soc Trans* 58 103
Harris L J (1937) *Med Offr* 58 239
Hecht S (1937) *Physiol Rev* 17 239
— and Mandelbaum J (1938) *Science* 88 219
— — (1939) *J Amer med Ass* 112 1910
— and Shlaer S (1938) *J opt Soc Amer* 28 269
Higgins C C (1937) [illegible] 65 [illegible]
Isaacs, B L Jung F T and Ivy A C (1938) *J Amer med Ass* 111 777 cited by *Bull Hyg* 14 14[illegible]
Jeghers H (1937) *J Amer med Ass* 109 756
Juhász-Schäffer A (1938) *Klin Wschr* 17, 407
Jung F T (1938) *Science* 87 461
Kimble M S and Gordon E S (1939) *J biol Chem* 125 Proc iii
Krause A C and Sidwell A E (1938) *Amer J Physiol* 121 215
League of Nations (1938) *Bull Hlth Org* 7 471
Lindqvist, T (1938) *Acta med scand* 9[illegible], suppl 97 315
McKenzie A (1938) *S African med J* [illegible] 143
— (1939) *Trans R Soc trop Med* 32 717
Maitra M K and Harris L J (1937) *Lancet* 2 1009
Menzies, J (1938) L C C Annual Report for the year 1937 of the School Medical Officer p [illegible]
Moore L A (1939) *J Nutrit* 17 443
Orr J B (1936) Food Health and Income London
Outhouse J and Meyer C R (1938) *Ill Agr Exp Sta Annual Rep* 1938 p 211
Palmer C E (1938) *Amer J publ Hlth* 28 309
— and Blumberg H (1937) *U S publ Hlth Rep* 52 1403
Park [illegible] (193[illegible]) *J Oklahoma St med Ass* 29 357
— (1936) *Ibid* 29 1[illegible]
Pett L B (1939) *Nature Lond* 143 23
Pies R, and Wendt H (1939) *Klin Wschr* 18 489
Schettler, O H Bishop P [illegible] (1937) *J [illegible] Hyg* 21 [illegible]
Selweck C, and Miller W O (1938) *Arch intern Med* 61 310
Smith [illegible] (1937) *J Nutrit* 9 6[illegible]
— (1939) *Ibid* 18 50[illegible]
Stewart C P (1939) *J Physiol* 96 28P
Jans [illegible] (1939) *Brit J Ophthal* 23 1[illegible]
Thomson A M Griffith H D Mutch J R and Lubbock D M (1939) *Brit J Ophthal* 23, 461 697
Wald G (1935) *J gen Physiol* 19 351
— and Clark A B (1937) *Ibid* 21 93
— Jeghers, H and Arminio J (1938) *Amer J Physiol* 123 732

PERNICIOUS ANÆMIA IN EGYPT

By S Azmy Pasha, M D Cairo, F R C P
PROFESSOR OF THE POSTGRADUATE SECTION OF MEDICINE, CAIRO AND

A F Zanaty, M B Cairo, D T M & H., M R C P
LECTURER ON HÆMATOLOGY ROYAL FACULTY OF MEDICINE, CAIRO

Addisonian anæmia has a distinct racial incidence It is generally regarded as a disease of the nordic races and less common among southern races In America too, there is a higher incidence among immigrants from northern Europe (Anglo Saxons) than among those of Latin extraction (Levin and Ladd 1921) This racial susceptibility is further demonstrated by the fact that Finns, out of all races, are more liable to develop the disease when infested with *Diphyllobothrium latum*—a parasite which produces a blood picture indistinguishable from that of genuine addisonian anæmia (Birkenland 1932) The disease is rarely met with in asiatics and is unknown in the tropics (Schilling) The extreme rarity of this disease in Egyptians has been emphasised lately by Salah (1935) * He did not meet with it in the achylia of pellagra which is very prevalent in Egypt In the course of investigating hundreds of anæmias however we have come across one case which, for all practical purposes, presents the typical picture of the disease

CASE RECORD

A male, aged 35, was admitted on Aug 16, 1938, with severe anæmia He complained of shortness of breath, epigastric pain and occasional pain in the limbs of one year's duration

Present illness—A year ago the patient had an attack of diarrhœa, passing about twenty stools daily, containing mucus but no blood This lasted a month and left him very weak, and he became somewhat paler Nine months ago he sought advice in the hospital and was apparently diagnosed as a case of amœbic dysentery He was recommended six injections, probably emetine, and a saline mixture He had one injection only, was unable to turn up again for the rest, and did not continue the treatment After lying bedridden three weeks without treatment he began to feel better, his appetite improved, and his colour became normal He resumed his work and remained well for the whole winter Four months ago he began to feel ill again, became very short of breath, and had pains in the lower limbs especially on exertion Tinnitus throbbing in the head and œdema of the ankles began to worry him and he became steadily paler One and a half months ago the diarrhœa recurred his general condition went from bad to worse and on seeking advice again in the outpatient department he was admitted to hospital

Past history—The patient had lived for the last twelve years in Cairo and during that time had never been away. Before then he lived in the country where he was doing the same type of work (silk-spinning) He has never engaged in agriculture and gave no history of any parasitic infection or any serious or prolonged illness

On admission there was much loss of appetite and severe diarrhœa The skin and mucous membranes were very pale but neither showed any petechial hæmorrhages The conjunctivæ presented a doubtful subicteric tinge The tongue was smooth and atrophic and although the patient had a definite temperature it was clean and without any trace of coating whatsoever The patient then volunteered a history of burning pain and fissuring of the tongue and occasional bleeding of the gums, which came on at intervals throughout the last year. The liver was not felt, but the spleen could be felt one finger-breadth below the costal margin on deep inspiration. It was firm but not tender. The apex-beat was in the fifth space in the nipple-line, and a distinct hæmic murmur was heard at the apex and pulmonary areas. Blood-pressure 120/65 mm. Hg. Pulse-rate 114, pulse rather soft Nothing abnormal was found in the lungs. There was some paræsthesia in the limbs but no abnormality of reflexes, dysuria, or disturbance of micturition. Repeated examination of stools was negative for any ova, parasites, or amœbic cysts The urine had a specific gravity of 1 010 and contained no albumin, sugar, casts, or schistosoma ova. The Wassermann reaction was negative Blood was negative for malaria parasites The hæmoglobin was estimated to be 30 per cent, and iron and ammonium citrate 6 g daily was immediately prescribed.

---

* [illegible]

Since no improvement took place within a fortnight, one tablespoonful of a liver preparation, which also contains Marmite and iron, was given three times daily and continued for ten days In view of the lack of any appreciable improvement aplastic anæmia seemed to be the most probable diagnosis, and the case was referred to us for further investigation

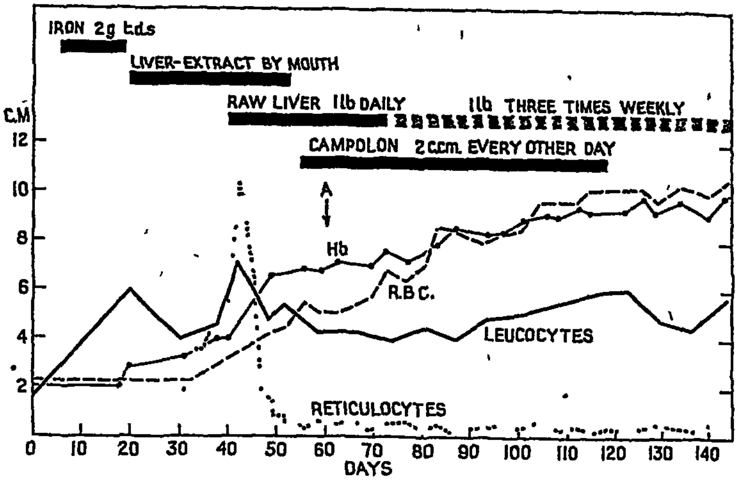


FIG 1—Graphs showing behaviour of hæmoglobin, red blood-cells, leucocytes, and reticulocytes during treatment of pernicious anæmia Note (1) brisk response of reticulocytes to adequate liver therapy, and (2) lag of response of hæmoglobin and red blood-cells in the presence of infection with scabies A, treatment for scabies begun Scale: 1 cm = 1000 leucocytes, 10 per cent. hæmoglobin, 500,000 red blood-cells, and 2 per cent reticulocytes

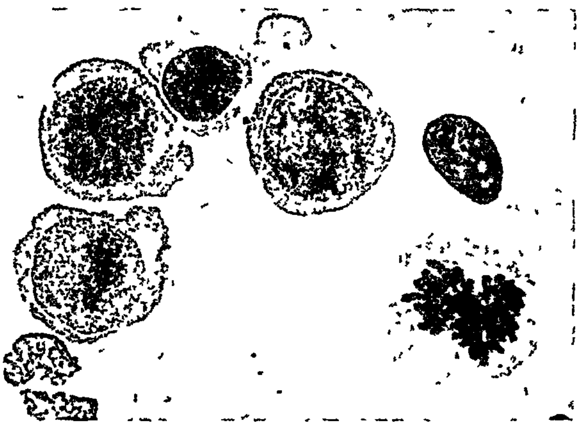


FIG 2—Bone-marrow picture in pernicious anæmia before start of liver therapy Note typical megaloblastic hyperplasia One megaloblast is seen undergoing mitosis

The first full examination of the blood was made on Sept 24, 1938, and showed a definite hyperchromia, leucopenia, and thrombocytopenia. Poikilocytosis and, more especially, anisocytosis were very conspicuous Many megalocytes with their characteristic large oval and deeply staining form were seen, and the average corpuscular diameter was 8 2 µ (fig 3) A bone-marrow puncture, performed on the same day and examined before the blood film, not only excluded an aleukæmic leucosis as well as aplastic anæmia but showed megaloblasts typical of addisonian anæmia (fig 2)

A fractional test-meal soon afterwards revealed histamine-refractory achylia. The icterus index was 10 units, and van den Bergh's test gave a delayed direct reaction The amount of fat in the stools and the ratio of split to non-split fats were normal. Since injections of liver-extract—e.g Campolon and Hepatex—were not yet available and liver-extract by mouth was considered insufficient, as shown by the slow rise of reticulocytes, 1 lb. of raw liver was administered daily. The reticulocytes began to rise more quickly and soon reached 20 per cent. The patient felt steadily better and stronger He could go through any moderate exertion without being short of breath Tinnitus and pains in the limbs disappeared His colour gradually improved, and the spleen diminished until it could not be felt.

Blood-counts were made twice and reticulocyte counts three times a week, and at critical periods the reticulocytes were counted daily (see table and fig 1) At some time during the treatment, when the hæmoglobin was 65 per cent, it was noticed that any further rise of either hæmoglobin or red blood-cells was very slow, in spite of injections of campolon The patient was then thoroughly examined for any source of infection, and scabies with secondary infection was discovered on the back and genitals After specific treatment the hæmoglobin and red blood-cells rose steadily to 95 per cent. and 5,120,000 respectively at the time of discharge. The patient then appeared quite a different man, at least normal if not plethoric. A fractional test-meal performed at the same time

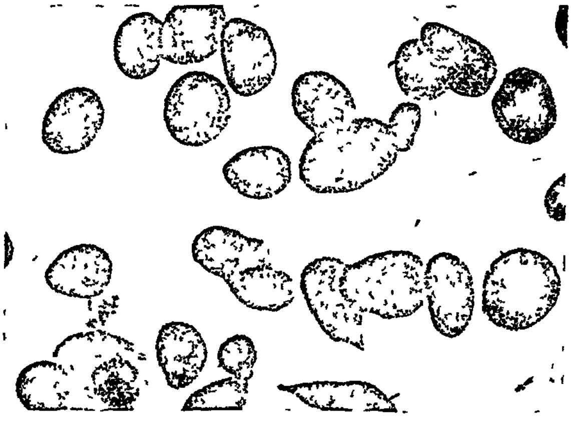


FIG 3—Blood smear taken at the same time as fig. 2 Note megalocytes, hyperchromia, anisocytosis, and poikilocytosis One hæmoglobiniferous megaloblast is seen in the left lower corner.

TABLE SHOWING SERIAL COUNTS OF THE BLOOD AND BONE MARROW DURING THE COURSE OF THE TREATMENT

See reference below	Date	Hb (%)	R B C (millions)	W B C	Reticulocytes (%) (a) platelets	Basophils	Eosinophils	Myeloblasts	Promyeloblasts	Myelocytes	Juvenile	Staff	Segmented	Lymphocytes	Monocytes	Megaloblasts	Macroblasts	Normoblasts	Reticulum cells
—	1938 Sept 24	32	1 000	1 [illegible]00	3·5 (a) 40 000	0	11	0	0	0	0	3	44	40	2	1	—	—	—
A	„ 24	B M	B M	152,000	—	0	6	0	0	3·2	8·2	12	5	3	0·6	45	6	3	8
—	„ 27	35	1 100	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 28	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—
B	„ 28	B M	B M	10[illegible] 400	—	0	4·2	0	0	4·2	7·8	8·4	5·1	1·3	0	23·1	22·6	15·8	7·5
—	„ 29	—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 30	—	—	—	8·5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	Oct 1	30	1 300	[illegible] 100	8·6	0	9	0	0	0	0	4	52	33	2	—	—	—	—
C	„ 2	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 3	39	—	—	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
D	„ 3	B M	B M	[illegible] 000	—	0	3	0	0·2	8	8	17	4	1·8	0	6	16	32	4
—	„ 4	—	—	—	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 5	45	1 600	[illegible] 000	21 (a) 139 000	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 6	—	—	—	18·5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 8	53	1 800	[illegible] 000	13·5	0	7	0	0	0	0	4	53	28	8	—	—	—	—
—	„ 9	—	—	—	11·5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 10	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—
E	„ 11	B M	B M	[illegible] 000	3·5	—	3·5	0·7	0·3	13	8	23·5	12	7	3	0·3	5	23	0·7
—	„ 12	65	2 100	4 [illegible]00	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 13	—	—	—	1·5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 15	67	2 200	[illegible] 400	1·5	1	11	0	0	0	0	4	41	33	10	—	—	—	—
F	„ 16	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 17	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 18	—	—	—	0·8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G	„ 19	68	2 790	4 [illegible]00	0·5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 22	68	2 550	4 200	1·2	2	12	0	0	0	0	2	23	53	8	—	—	—	—
—	„ 26	70	2 500	—	0·8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 29	70	2 630	4 200	1	1	15	0	0	0	0	2	27	48	7	—	—	—	—
H	Nov 2	70	2 800	—	0·5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 5	75	3 400	4 000	0·[illegible]	1	13	0	0	0	0	3	22	53	8	—	—	—	—
—	„ 9	72	3 200		1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 13	75	3 450	[illegible] 100	0·4	2	10	0	0	0	0	3	23	48	14	—	—	—	—
—	„ 16	80	4 260		0·8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 19	85	4 250	[illegible]	0·4	1	13	0	0	0	0	4	28	41	13	—	—	—	—
—	„ 20	82	4 010	[illegible]00	0·6	0	11	0	0	0	0	2	28	45	14	—	—	—	—
—	„ 30	84	4 300		0·8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	Dec 3	88	4 270	[illegible] 000	0·[illegible]	0	8	0	0	0	0	2	43	29	18	—	—	—	—
—	„ 7	*90*	*4 860*		1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 10	90	4 850	[illegible] 100	0·5	0	18	0	0	0	0	6	22	47	[illegible]	—	—	—	—
—	„ 14	*92*	*4 800*		0·6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 17	92	5 000	[illegible] 600	0·3	0	20	0	0	0	0	4	40	30	6	—	—	—	—
—	„ 24	93	5 050	[illegible] 000	0·4	0	8	0	0	0	0	0	42	42	8	—	—	—	—
—	„ 28	98	5 100		0·6	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 31	[illegible]	4 800	4 800	0·8	0	12	0	0	0	0	4	10	38	[illegible]	—	—	—	—
—	1939 Jan 5	97	5 1[illegible]0	—	0·5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
I	„ 5	B M	B M	23 000		0·5	4	1·5	10	13	13	13	16	14	2	—	—	11	2
—	„ 7	95	5 120	4 400	0·5	0	10	0	0	0	0	0	32	48	10	—	—	—	—
—	„ 11	90	5 000		0·8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	„ 15	98	5 200	[illegible] 000	0·[illegible]	0	4	0	0	0	0	4	38	52	2	—	—	—	—

B M = bone-marrow

A.—*Sept* 24, 1938 Very hyperplastic marrow, typically megaloblastic promegaloblastic

B.—*Sept* 28 Hyperplastic marrow, many macroblasts made their appearance megaloblastic macroblastic

C.—*Oct* 2 Liver started 1 lb every day

D.—*Oct* 3: Hyperplasia is still marked, normoblasts predominating macroblastic normoblastic

E.—*Oct* 11 Cellularity is less and marrow distinctly normoblastic Some aniso- and poikilo-cytosis is still present Hardly any megaloblasts seen.

F.—*Oct* 16 Campolon treatment started and liver extract by mouth stopped

G.—*Oct* 19 Scabies treatment started

H.—*Nov* 2 Liver, 1 lb three times weekly

I.—*Jan* 5 1939 Appearance of an absolutely normal bone marrow

showed achylia, which was again refractory to histamine, and the icterus index was now normal (2 units only).

COMMENTS

Although the patient was only 35 years old, which may partly explain the absence of such a characteristic feature as the greyness of hair the incidence of the disease at this age is by no means uncommon.

The history of the illness is very characteristic. It was ushered in by diarrhœa and underwent a typical and complete spontaneous remission followed by a severer relapse.

The case illustrates very clearly the main guiding principles of liver therapy—namely that liver or liver extracts must be given in sufficient doses and that any existing sepsis must first be treated before raw liver or extract can exert its full therapeutic effect.

The patient's diet, as described by the patient, was apparently adequate and did not suggest any specific deficiency which might be responsible for a nutritional macrocytic anæmia—a disease which we have not met with, even in the poorest classes, up to the present time in Egypt. Moreover, the absence of response to marmite and the presence of a histamine refractory achylia persistent after treatment afford additional evidence that the case was one of genuine addisonian anæmia.

The bone marrow puncture requires special comment. It gave the first clue to the presence of a disease which is so rare in Egypt. The repeated biopsy (see table) further demonstrates the subsidence of extreme hyperplasia and the transformation of a megaloblastic picture into a normoblastic one. This transformation, however, goes through a definite macroblastic phase, and a study of the literature of pernicious anæmia under liver therapy leaves little doubt that megaloblasts on the one hand, and macroblasts and normoblasts on the other, are neither strictly clean-cut and separate red cells nor genetically different, as was always emphasised by the Ehrlich-Naegeli school of hæmatologists They are no more than one and the same mother-cell, whose degree of development is influenced by certain specific factors, and a serial study of the bone-marrow, which, thanks to the sternal puncture, is now safe and handy, leaves no doubt about this transition and their ultimate genetic and biological unity

We are much indebted to Dr. M. Soliman, assistant physician to King Fouad I Hospital, for referring this case to us.

REFERENCES

Birkenland, I W (1932) *Medicine, Baltimore,* 11, 1
Levin, S A, and Ladd, W S (1921) *Bull Johns Hopk Hosp* 32, 254
Salah, M (1935) *J Egypt med Ass* 18, 473
Schilling, V, cited by Naegeli, O (1931) Blutkrankheiten und Blutdiagnostik, 5th ed Berlin, p 366

CLINICAL USE OF TRIPHENYLCHLORETHYLENE

By A. I S Macpherson, M B. Edin
GYNÆCOLOGICAL AND OBSTETRICAL HOUSE-SURGEON AT THE ROYAL INFIRMARY, EDINBURGH, AND

Edwin M. Robertson, M.B Edin, F.R C S E, M.R.C.O.G.
JUNIOR ASSISTANT GYNÆCOLOGIST AND OBSTETRICIAN TO THE INFIRMARY, ASSISTANT GYNÆCOLOGIST TO THE WESTERN GENERAL HOSPITAL AND LEITH HOSPITAL, EDINBURGH

That the administration of triphenylethylene and of triphenylchlorethylene can induce œstrus changes and mating has been demonstrated by Robson (1938) in the oöphorectomised mouse, monkey, and bitch, and by Robson and Schönberg (1937) in the hypophysectomised rabbit The œstrogenic action of these substances has certain points of interest. They are active when given by mouth or by injection. The threshold of œstrogenic activity, as estimated by vaginal cornification in mice, is low—about a ten-thousandth of that of œstradiol (Robson 1938). On the other hand, when they are given by mouth, the duration of their action, weight for weight, is approximately the same as that of œstradiol benzoate (the œstrogenic preparation commonly used) and only slightly less than that of stilbœstrol; after subcutaneous injection the duration of action, weight for weight, is about three times that of œstradiol benzoate and five times that of stilbœstrol (Robson, Schönberg, and Fahim 1938) Further, they have been shown to have an extremely low toxicity towards animals; in mice the tolerated dose is at least four hundred times the œstrogenic dose, and total amounts, by injection, of 5 8 g in a bitch, 8 g in a monkey, 20 g in a mare, and 0 2 g in mice have produced no recognisable harmful effects (Robson 1938). In susceptible strains of mice prolonged and heavy dosage (not less than a total of 90 mg given in weekly doses of 5 mg.) produce mammary carcinoma in the male, but in non-susceptible strains no tumours develop (Robson and Bonser 1938) In this respect, and in the occasional production of squamous metaplasia of the endometrium in treated animals, the action of these substances closely resemble that of the natural œstrogens (MacEuen 1933)

Experiments in vitro have shown that stilbœstrol, in a concentration of 1 in 1,000,000, causes the plain muscle of the uterus, intestine, and blood-vessels, but not heart muscle, to lose tone and the power of spontaneous rhythmical contraction and inhibits its reactivity to various activating substances—e.g., barium chloride and acetylcholine Similar effects are obtained by using a 1 in 200,000 solution of œstradiol. A solution of triphenylethylene of the same concentration (1 in 200,000) did not reduce the reactivity to acetylcholine and caused no depressor effects (Dawson and Robson 1939).

The œstrogenic effect in primates, the low threshold activity, the very prolonged and powerful action, and the low toxicity suggested that these substances might be suitable for clinical use. Triphenylchlorethylene was used in this investigation because its action is greater and more prolonged than that of triphenylethylene

METHODS OF ADMINISTRATION

Triphenylchlorethylene was prepared for oral use in tablet form, each tablet containing 200 mg., in ampoules containing 250 mg. dissolved in 5 c cm of sesame oil, suitable for injection; and in cocoa butter made up in the form of vaginal suppositories, each containing 100 mg Dissolved in sesame oil the substance tends to precipitate out on standing, but it can be redissolved by heating in a water-bath at 100° F for twenty minutes This tendency to leave an oily solution makes the effect of an injection of the substance more or less similar to the subcutaneous implantation of a tablet.

Tablets are given after meals, and as many as nine a day may be given without any fear of producing toxic effects

Two injections are given a week apart to begin with, followed by a third injection three weeks after the second. Subsequent injections may be given at intervals of three or four weeks according to the response produced Vaginal suppositories are used nightly for the first fourteen days of treatment and then on alternate nights or every third night, as determined by the progress made

SELECTION AND CONTROL OF CASES

The cases chosen for treatment with triphenylchlorethylene were such as might have been expected to benefit from administration of œstrogenic preparations The 41 cases treated included 4 of amenorrhœa; 16 in which menopausal symptoms were troublesome, 8 with atrophic vulvitis or some similar condition; 1 with atrophic rhinitis; and 12 cases in which it was desirable to inhibit lactation

Where possible, the progress of most of the cases has been estimated and controlled in two ways · (1) by a subjective record of symptoms made by the patient over a period of two weeks before the institution of treatment and for a similar period thereafter, and (2) by an objective record obtained by repeated examination of vaginal smears The technique used for this examination was that of Papanicolaou and Shorr (Papanicolaou 1933, Papanicolaou and Shorr 1936)

AMENORRHŒA

In each of the 4 cases treated there have been periods of withdrawal bleeding between the courses of treatment The total dosage that has produced this result has been 12,000–16,000 mg.

In case 1 (table I), aged 23, with secondary amenorrhœa of two years' duration, 16,800 mg. of triphenylchlorethylene, given by mouth, produced results fairly similar to those obtained from 40 2 mg. of œstradiol benzoate given by injection. With further courses of treatment, three successive "periods" began about the seventh day after the administration of the drug had been stopped. This approximates closely to the withdrawal interval found when stilbœstrol is used

TABLE I—TREATMENT OF AMENORRHŒA WITH TRIPHENYLCHLORETHYLENE

Case No.	Age	Duration and type	Dosage: Mode	Daily (mg.)	Days given	Total (mg.)	Response	Withdrawal interval
1	23	2 years secondary	Oral "	1000 800	14 11	[illegible]	4 day period	6 days
			"	1,000 [illegible]	[illegible]	[illegible]	4 day period	7 days
				[illegible]	[illegible]	16,[illegible]	4 day period	7 days
				1,[illegible]	[illegible]	16,[illegible]	4 day period	7 days
5	20	Primary	Oral	1,000 800	11 1	[illegible]	Period for several days	?
				[illegible]		[illegible]	1 day period	4 days
39	30	2 years secondary	Oral	1,200	10	12,000	4 day period	1 day
				1200	10	12,000	1 day period	9 days
			Inj	250	2	500	No bleeding	9 weeks
52	33	8 months secondary	Oral	1200	21	[illegible]	Period for several days	7 days

(Bishop et al. 1939) and agrees with the relative duration of action of these two substances when given by mouth to the experimental animal (Robson, Schönberg, and Fahim 1938).

In case 5 (table I), aged 20, with primary amenorrhœa, a profuse withdrawal bleeding of several days' duration followed oral administration of 10,800 mg. After a second course, reduced to 2800 mg. because of sickness with larger doses, bleeding, lasting a day, took place on the fifth day.

In case 30 (table I), with secondary amenorrhœa of two years' duration, the uterine cavity was 2¼ in. in length, and no endometrium was obtained by curettage. Two successive courses of triphenylchlorethylene 1200 mg. daily by mouth for ten days were followed by uterine bleeding: after the first, on the day treatment was stopped, and, after the second, on the tenth day after the end of the course. No treatment was given for three months, and there was no more bleeding. At the end of that time curettage revealed an atrophic stroma with no glands. Two injections of 250 mg. each were then given at an interval of a week. Eight and a half weeks after the second injection the uterine cavity was 2¾ in. in length, and the tissue removed by the curette consisted of a few broken-up endometrial glands and small clumps of stroma cells. The vaginal smear was of the well-developed œstrous or follicular type, with many clearly defined cornified cells with small nuclei, demonstrating, after eight and a half weeks, the prolonged action of the drug when given by injection.

MENOPAUSAL VULVITIS AND VAGINITIS

Of the patients, all postmenopausal, selected for this treatment 7 had atrophic rather than primarily infective vulvitis and vaginitis. The eighth patient in this group complained of intense itching of the vulva, and, although bacteriological examination did not reveal a likely cause, the left labium majus was enlarged and indurated. In all these cases the chief symptom was irritation and itching over the vulva. In 2 cases the vulvar skin was dull and even white in places, and in 5 the local condition was a mild kraurosis, with patchy redness round the vaginal meatus and in the vestibule. In 6 cases there was also senile vaginitis.

The drug was given orally in 4 cases and by injection in 4. The amounts used in each course of treatment were not constant throughout this group, but the variations were not wide. The result of the treatment in almost every case was complete relief from symptoms (table II); where vaginal smearing was carried out, the follicular phase was eventually attained, and in 7 out of 8 cases the local condition was obviously improved.

An injection of 250 mg., followed a week later by a second injection, produced alleviation of symptoms within a week of the first injection. This dosage maintained a normal vaginal smear of the follicular type for four to five weeks and freedom from symptoms for about six weeks.

In case 2 (table II), with senile vaginitis, 500 mg. was given by the technique described, and, when she reported four weeks later, all symptoms had disappeared, the vagina appeared healthy, and the smears were normal. Four weeks later—i.e., eight weeks after the second injection—the vagina showed patchy redness, approximately half of the smear consisted of leucocytes, the remainder being mostly superficial cells clumped together and folded—a fairly advanced regressive type of smear—and the patient reported the return of the symptoms during the previous two weeks.

In 2 cases injections were carried on over a period of some months, being given at intervals of about four weeks. Benefit was well maintained during these prolonged courses, and there was no loss of toleration at any time. When the drug was given orally (in 4

TABLE II—EFFECT OF TRIPHENYLCHLORETHYLENE ON MENOPAUSAL VULVITIS AND VAGINITIS

Case No.	Age	Menopause age and type	Dosage: Mode	Dose (mg.)	Duration of treatment (days)	Total (mg.)	Response: 1 Subjective 2 Local 3 Smear
2	39	33 Cast	Inj	250	7	500	1 Relief for six weeks. 2 No redness 3 Œstrus
			Inj	250	92	1250	1 Complete relief 2 Healthy 3 Œstrus
8	[illegible]	43 Nat	Inj	250	1	250	1 Irritation less for 10 days 2 No change 3 Slight response
			Inj	250	127	1750	1 Complete relief 2 Skin resumed normal appearance 3 Œstrus
13	34	31 Cast	Inj	250	8	500	1 Moderate relief 2 Some improvement 3 Œstrus
19	48	46 Nat.	Oral	800 400	56 49	[illegible] [illegible]	1 Irritation relieved 2 Vagina normal 3 Œstrus
31	40	39 Cast	Supp	100	21	1500	1 No change 3 [illegible]
			Oral	800	6	4800	1 Slight improvement 2 3 Increased cornification
[illegible]	50	48 Nat	Inj	250	8	500	1 Very much improved 2 Appears normal 3 Œstrus ten days later
[illegible]	[illegible]	43 Nat.	Oral	[illegible] 1200	7 2[illegible]	[illegible]	1 [illegible] 2 [illegible]
[illegible]	39	—	Oral	[illegible] 1[illegible]	2[illegible] [illegible]	[illegible]	1 [illegible] 2 No change

Menopause: Cast = castration, Nat = natural.

cases), relief from symptoms and local improvement developed simultaneously

Only 1 patient, case 31 (table II), so far has been treated with vaginal suppositories She said that the itching was greatly lessened, but there was no improvement noticeable in the vaginal smear. On this evidence no opinion can be passed on the efficacy of the local application of the drug

In this type of case, as in certain others also, there may be "congestive" bleeding. In 1 patient, case 8 (table II), there was fairly severe bleeding, lasting nine days, during treatment for leukoplakia vulvæ Endometrial flakes were passed. Such bleeding is not uncommon in the course of prolonged administration of œstrogenic hormones (Papanicolaou and Shorr 1936, Werner and Collier 1933)

TABLE III—EFFECT OF TRIPHENYLCHLORETHYENE ON MENOPAUSAL SYMPTOMS

Case No	Age	Menopause age and type	Dosage				Response
			Mode	Dose (mg.)	Days given	Total (mg.)	
4	35	34 Cast	Oral	400 800	28 14	22,400	Headache same; flushing improved
7	44	43 Cast	Oral	400 800 400 200	7 28 14 14	33,600	Headaches, flushing and insomnia cured for 28 days
			Oral	600 400	21 28	23,800	Symptoms cured again; smear=œstrus type
10	32	32 Cast	Oral	800 1200 800 400 200	10 7 14 7 21	34,600	Complete relief; flushings almost gone
14	34	33 Cast	Oral	1200 800 600	24 28 42	76,400	Insomnia cured; flushings reduceed; headaches and sweating slight, smear=œstrus type
15	38	38 Cast.	Oral	400 200	7 35	9800	Flushing 70 in 14 days; headaches few and short
			Oral	800	35	28,000	Flushings and headaches very few
20	41	40 Cast	Oral	1200 800 400 800	14 14 10 35	60,000	Flushings reduced, headaches few now; smear =œstrus
23	34	32 Cast	Oral	800	60	48,000	Flushings much reduced, headaches still present; insomnia and palpitation improved, smear =œstrus type
26	31	31 Cast	Oral	1200 800	35 21	58,800	Flushings reduced; smear =œstrus type
35	32	32 Cast	Oral	800	14	11,200	Flushing decreased; head aches cured, smear =pre-œstrus type
40	33	32 Cast	Oral	1200 1800	50 7	72,600	Flushing much reduced
41	40	40 Cast	Oral	1200	28	33,600	Flushing much reduced
42	45	41 Nat	Oral	600 1200	7 14	21,000	Flushing reduced for 3 weeks
43	43	42 Nat	Oral	600 1200	16 14	26,400	Occasional flushing, no sweating
45	52	45 Nat	Oral	1200	28	33,600	Flushing and headaches very much improved, vaginal itching cured
46	34	34 Cast	Oral	1200	28	33,600	Flushing and headaches improved, insomnia cured
47	32	32 Cast	Oral	1200 1200 1000	20 3 7	34,600	Flushing much reduced

MENOPAUSE

In 13 of the 16 patients treated the menopause followed surgical removal of the ovaries, and in 3 cases the symptoms were associated with a natural menopause The symptoms which were specially noted were flushing, headache, sweating, insomnia, palpitation, nervousness, and neuritis In 3 cases the headache was not alleviated by the treatment, but, apart from these cases which, incidentally, were cured of other symptoms, great improvement or complete cure was noted. In every case there was a considerable decrease in flushing, sweating, and insomnia.

The patients in this group all received the drug in tablet form, 200–1800 mg. (one to nine tablets) being taken daily for, in some cases, several successive courses of four to five weeks (table III) The effect of the drug was noticed within two days of the start of treatment, and after the average course, which lasted three to four weeks, the action of the drug was maintained for another two weeks before any recurrence of symptoms was noticed. Vaginal smears taken before the start of treatment always reflected the absence of ovarian secretion, but after treatment with triphenylchlorethylene the smears showed the building up of the vaginal skin to the type found in the sexually active adult. Smears taken two weeks after treatment had been stopped showed the waning action of the drug in the appearance of leucocytes and clumps of degenerating squamous cells. The duration of action after oral administration is exemplified in the record of case 7 (table III) After a total dosage of 33,600 mg over a period of nine weeks there were no flushings noted in the patient's record over a period of two weeks. No further treatment was given for four weeks. From her further record a gradual return of symptoms was apparent from fourteen days after cessation of treatment, and the smears showed leucocytosis, mucus, bacteria, and partially cornified and folded squamous cells tending to clump together—regressive smear.

INHIBITION OF LACTATION

Triphenylchlorethylene was given to 12 patients to inhibit or stop milk secretion, 6 by mouth and 6 by injection (table IV) In those treated by mouth the total dosage has been approximately 4000 mg given over a period of five or six days A high concentration was obtained early by giving 1200 mg on the first two days, and the dosage was subsequently decreased so that only 200 mg (one tablet) was given on the fifth and sixth days Where treatment was begun shortly after delivery, the breasts remained soft and painless in 4 out of 6 cases Of the other 2 patients, one experienced discomfort on the third day, and the other secreted a considerable quantity of colostrum for three days but no milk. In 2 patients, treated by injection on the first day of the puerperium, the breasts showed no engorgement and remained painless Where lactation was already established, treatment by tablets or by injection of 250–300 mg led to cessation of milk secretion after three to five days, and in no case was there any recurrence

Case 30 (table IV) presents features of interest. Both nipples were very badly cracked, and on the third day after the appearance of milk both breasts became acutely and completely engorged, and the temperature and pulse-rate rose. Ichthyol soaks were applied locally, and on the seventh day post-partum treatment with triphenylchlorethylene by mouth was begun. Temperature and pulse-rate fell,

TABLE IV—INHIBITION OF LACTATION WITH TRIPHENYL CHLORETHYLENE

Case No	Indication	Day of puerperium started	Dosage			Response
			Mode	Total (mg.)	Days given	
16	Stillbirth	2nd	Oral	4800	5	Breasts involuted by 5th day Pain and engorgement on 3rd day, relieved Constipation in puerperium
17	Stillbirth	1st	Oral	4000	4	No lactational activity Long labour Constipation in puerperium
21	Stillbirth	1st	Oral	4400	4	Slight engorgement 3rd day regressed by 4th day
24	Acute mastitis	31st	Oral	4400	6	No secretion after 33rd day
20	Stillbirth	2nd	Oral	3800	5	No lactational activity
30	Acute mastitis (see text)	7th	Oral	3800	5	Painless by 10th day, recurrence in L. breast on 14th day
		14th	Oral	4400	5	L. breast normal in 3 days. Recurrence in R. breast on 21st day
		21st	Oral	3600	5	Small knot remained in R. breast
19	Stillbirth	1st	Inject	250	1	No lactational activity
22	Stillbirth	1st	Inject	250	1	No lactational activity
25	Child died 5th day	5th	Inject	250	1	Regression rapid after 1st injection, still some secretion on 10th day Lactational activity disappeared after 2nd injection
		10th	Inject	250	1	
28	Premature child died on 4th day	4th	Inject	250	1	All activity suppressed by 8th day Tender and engorged on 4th and 5th days
32	Separation from child	19th	Inject.	300	1	L. breast activity ceased by 21st day, lump in R. breast (axillary tail) disappeared by 23rd day
34	Stillbirth	2nd	Inject	300	1	Soft with no discomfort on 6th day

and both breasts were flat and painless after three days. Four days later a small lump was palpable in the left breast. A second course of triphenylchlorethylene was given, and by the seventeenth day the lump was no longer palpable. Again four days later, a rounded, painful, and tender lump appeared in the right breast. A total of 3600 mg was given over a period of five days and ichthyol was again applied to the breast. By that time there was still a small localised thickening in the right breast, painless and not tender to touch, and it was thought safe to allow the patient to go home with a support and a kaolin poultice to the affected breast. A week later a localised abscess had formed at this spot in the right breast, and *Staphylococcus aureus* was cultured from it. It seems not unreasonable to assume that the administration of triphenylchlorethylene was serviceable in the prevention of more acute and widespread abscess formation, and that intensification or prolongation of the third course of treatment might have prevented the congestion in the breast which formed the basis of the final subacute abscess.

ATROPHIC RHINITIS

One patient with atrophic rhinitis has been treated by spraying triphenylchlorethylene in oil into the nose. There was much improvement, and clinically the result is identical with that obtained by the use of œstrone in oil (MacGibbon 1939).

TOXIC EFFECTS

In view of the reported occurrence of undesirable side actions with stilbœstrol (Bishop et al. 1939, Winterton and MacGregor 1939, Loeser 1939, and Donald 1939), a careful search for any recognisable toxic effects was made in this series of cases. Only 1 patient (case 5) reported nausea and vomiting during the first course of oral therapy. In a subsequent course with reduced dosage there was no sickness. Case 31, while taking a short course of the tablets, also experienced nausea. In 3 patients (cases 7, 10, and 20) there was flatulence after eating "more than a little bread." One of these said also that her appetite had decreased, but in every other respect her health had greatly improved. All these patients had been on prolonged administration of the drug. Case 1, who had been slightly constipated before treatment, complained of increased constipation while taking triphenylchlorethylene. Cases 16 and 17 also were constipated, but both had endured very prolonged labours. On the other hand, in Case 19, whose bowels were purposely kept confined for five days, there was no sickness, nausea, or flatulence.

In Cases 24 and 30, in whom lactation was suppressed by this treatment, there was passage of blood per vaginam thirteen and three days respectively after the drug had been stopped and seven and three and a half weeks post partum. In neither case was there any evidence of local uterine infection or subinvolution, and in both bleeding was slight and lasted for two days only. In Case 20 headache and lethargy reappeared during prolonged treatment, but both symptoms responded to circumscribed and more concentrated courses separated by intervals of rest. Headaches had not decreased in duration in case 4 after small dosage over a period of four weeks, and the patient could not be traced subsequently. There has been no instance of irritation or pain at the site of injection.

SUMMARY

Triphenylchlorethylene is a synthetic substance which simulates the action of œstrogenic hormones. It can be safely administered by mouth, by injection, or as a local application. It causes the same effects as the naturally occurring œstrogens—namely, uterine growth, proliferation of the endometrium, withdrawal bleeding, transition of menopausal to œstrous vaginal smear, relief of menopausal symptoms, and inhibition of lactation. The threshold activity is low, consequently its action is not sudden or dramatic. It has no definite toxic effects and can be administered in large doses or over a long period of time. Under these conditions adequate dosage is easy to maintain and gives a remarkable certainty of action. The duration of action by mouth closely approximates to that of stilbœstrol. By injection, however, the duration is singularly prolonged: after 300 mg., by the technique described, effective action persists for six to nine weeks. By this method, therefore, a very small dosage is sufficient to maintain a continuous high level of œstrogenic activity.

We acknowledge our thanks to Imperial Chemical Industries Ltd (Dyestuffs group) who have ensured a supply of the drug; to Dr J. M. Robson of the department of pharmacology in the University of Edinburgh, who suggested that we should undertake clinical trials with this drug, for his valuable advice and willing help; and to Dr W. I. T. [illegible]

his kindness in permitting the use of triphenyl chlorethylene in his wards in the Royal Infirmary, Edinburgh, where the greater part of this investigation has been carried out

REFERENCES

Bishop, P M F, Boycott, M., and Zuckerman, S (1939) *Lancet*, 1, 5
Dawson, R. F, and Robson, J M (1939) *J Physiol.* 95, 420
Donald, H. R (1939) *Brit med J.* 1, 641.
Loeser, A A. (1939) *Ibid*, 1, 13
MacEuen, C. S (1933) *Amer J. Cancer*, 27, 91.
MacGibbon, A A (1939) personal communication.
Papanicolaou, G N (1933) *Amer J Anat* 52, 519
— and Shorr, E (1936) *Amer J. Obstet Gynec* 31, 806
Robson, J. M. (1938) *Proc Soc exp. Biol* 38, 153.
— and Bonser, G M (1938) *Nature*, 142, 836
— and Schonborg, A. (1937) *Ibid*, 140, 196
— — and Fahim, H. A (1938) *Ibid*, 142, 292
Werner, A A, and Collier, W. D (1933) *J Amer. med. Ass* 100, 1, 633
Winterton, W. R, and MacGregor, T. N (1939) *Brit med J.* 1, 10.

AGRANULOCYTOSIS COMPLICATING TREATMENT OF ACUTE PEMPHIGUS WITH M. & B. 693

BY DAVID ERSKINE, M D. Lond., D P H
DERMATOLOGIST AT THE SEAMEN'S DREADNOUGHT HOSPITAL, GREENWICH; AND

J. E ROYDS, M B. St. And.
HOUSE-PHYSICIAN AT THE HOSPITAL

SURVIVAL after acute (butcher's) pemphigus is sufficiently rare to warrant a report on the apparent value of sulphapyridine in this condition; and agranulocytosis is now recognised as a risk of high dosage with sulphonamide compounds, but the possibility of its occurrence after moderate dosage is insufficiently appreciated

A case of chronic pemphigus vulgaris was improved by treatment with M & B 693 (Barber 1938) and had been observed by one of us. As a result of the course taken by that case, it was decided to try the effect of M. & B 693 in the following case of acute pemphigus but to prolong the administration slightly in an attempt to overcome the tendency for the condition to relapse

CASE-RECORD

A male, aged 29, was admitted on May 21, 1939, having sustained an "electricity burn" on his right forearm twelve days previously; this had been treated with tannic acid and was healing without sepsis Three days before admission he had noticed irritation of his right ankle and found a small red patch surmounted by several small vesicles; a day later he became deaf During these last three days he had had anorexia and nausea and had been unable to take anything other than fluids. On the day before admission the skin condition spread over his entire body.

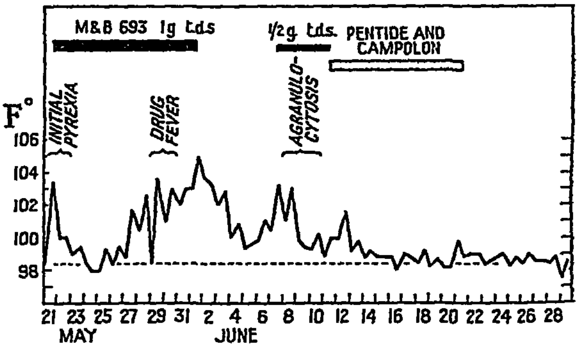
He was admitted in a profound toxæmia (temperature 103° F., pulse-rate 116, respiration-rate 20), with profuse tense dome-shaped bullæ filled with a clear fluid and varying in diameter from a few millimeters to an inch These bullæ were thickly scattered over all parts of the body and occasionally had a narrow erythematous margin; the intervening skin appeared healthy. There were several small vesicles on the palate and buccal mucosa surmounting areas of erythema. The patient was deaf to all but very loud stimuli. Fine râles were heard at the bases of both lungs; the heart sounds were normal. No abnormality was detected in the abdomen. Blood-culture was sterile; culture of fluid from the vesicles gave only a very scanty growth of *Staphylococcus albus*

Acute pemphigus was diagnosed, and treatment was begun with M. & B 693, 1 g. three times a day, while locally the skin was bathed with a 1 in 10,000 solution of potassium permanganate, and a 2 per cent. solution of tannic acid in a 1 in 1000 solution of flavine in paraffin was applied frequently.

Two days later the patient felt better, and there was an improvement in the general condition (temperature 98 8° F., pulse-rate 116). Many bullæ had broken and were drying, while others were less tense; there were only one or two new lesions. The patient was also less deaf. On the 25th (fifth day) the vesicles in the mouth had subsided, leaving erythematous areas on the palate and buccal mucosa, while on the body the vesicles were drying and leaving a brown pigmentation. Local treatment was changed to calamine lotion, and the administration of sulphapyridine was continued.

On the 28th (eighth day) the temperature rose again to 103° F, and the patient was slightly cyanosed and became delirious. No further lesions developed, but the administration of sulphapyridine was continued for another four days, at which stage "drug fever", was diagnosed. On cessation of therapy the temperature began to fall slowly, and the general condition rapidly improved. The skin was dry, pigmented and scaling. This improvement continued for another six days until June 7 (eighteenth day), when the temperature again began to rise; but the only abnormal physical signs detected were slight cyanosis and a dilatation of the left heart, with a generalised harsh systolic murmur—the first time a cardiac abnormality had been detected in frequent examinations

The possibility of an incipient relapse of the pemphigus was considered, and, since elimination of the drug appeared to be complete, M & B. 693 0 5 g was given three times a day The temperature fell, but the general condition remained unsatisfactory. The eruption had completely disappeared, but the cardiac enlargement and murmur were still present, and there was œdema of the feet. The spleen was not palpable, and the blood-culture was again negative. There was slight stomatitis but no faucial ulceration.



Agranulocytosis complicating treatment of acute pemphigus with M and B 693.

A white count showed 6000 cells, with only 17 per cent. polymorphonuclear, of which 90 per cent. were immature. There was thus depression of bone-marrow activity and some agranulocytosis. The sulphapyridine was discontinued, and Pentide 0 8 g. daily and Campolon 2 c cm. daily were given. A blood-count on the next day showed 2950 white cells, of which 49 per cent were polymorphonuclear. The condition then gradually improved, and on June 21 89 per cent. normally mature polymorphonuclear leucocytes were present in a total of 19,650 white cells; the hæmoglobin was 52 per cent., and there were 2,860,000 red cells per c.cm Pentide was discontinued on the 24th and campolon continued twice weekly. The heart sounds were now normal, and no enlargement was detected. There was a faint erythematous rash, which quickly cleared with a calamine lotion, and the patient was eventually discharged on July 31 with a satisfactory blood-picture and in good general condition, and he has now returned to his work.

COMMENTS

The diagnosis of acute pemphigus seemed to be beyond doubt, although the condition is generally reputed to be a disease of butchers, and in this case the patient was an electrician. The large tense bullæ of wide distribution arising from normal skin, the absence of secondary infection in the bullæ or the primary lesion, the incubation period of nine days, the presence of lesions in the mouth with negative blood and vesicle cultures, and the acute onset with profound toxæmia and delirium support the diagnosis, although the irritation and patches of erythema do not conform strictly with the typical picture of a more chronic pemphigus.

The effect of sulphapyridine thus appears to have been dramatic in a condition which has usually been considered to carry a grave prognosis. The temperature chart (see figure) shows the initial response to M & B 693, a secondary pyrexia from the eighth day, thought to have been due to "drug fever", and a third stage of pyrexia in association with granulocytopenia, which may have been produced by the pemphigus or its causal factor or possibly by toxicity of the M & B 693. Cyanosis and erythroblastic depression are not often seen during the administration of sulphapyridine; therefore the drug may not have been the cause of the agranulocytosis. Erythroblastic depression is much commoner during treatment with sulphanilamide and develops in the early days of treatment and not as late as the eighteenth day. The total dose of 38 g of M & B 693 is moderate in comparison with the higher doses that have generally been recorded in the reports of agranulocytosis from sulphonamide compounds (Nicol and Freedman 1939, Briggs 1939).

SUMMARY

A case of acute pemphigus developing nine days after an uncomplicated burn is reported. The condition responded favourably to the administration of M & B 693. Agranulocytosis was detected after a total dose of only 38 g of M & B 693, and the patient made a complete recovery.

We are grateful to Dr Arthur Davies, pathologist to the hospital, for the frequent blood-counts and for his help and advice in the treatment of the agranulocytosis.

REFERENCES

Barber, H. W. (1938) *Lancet*, 2, 750.
Briggs, G. O. A. (1939) *Ibid*, Sept. 30, p. 739.
Nicol, H., and Freedman, H. (1939) *Ibid*, Sept. 16, p. 647.

PEMPHIGUS NEONATORUM TREATED WITH SULPHAPYRIDINE (M. & B. 693)

By ARTHUR G. TROUP, M.D. Aberd., D.P.H.
MEDICAL SUPERINTENDENT OF WILLESDEN MUNICIPAL HOSPITAL AND

ROBERT M. WHITE, M.B. Edin., D.P.H.
RESIDENT MEDICAL OFFICER AT THE HOSPITAL

We have been unable to find any record of treatment of pemphigus neonatorum with any of the sulphonamides. There are however records of the successful treatment of pemphigus in adults by this method (Caro 1938, Lain and Lamb 1938). The following case is therefore worthy of record.

A male infant, aged 2 weeks, who had weighed 7¼ lb at birth, was admitted to hospital on Oct. 19, 1939. The mother said that she had noticed that his hands and feet had begun to peel on the first day after birth, although the rest of the body was normal. On the eleventh day the skin round the eyes had begun to peel and the face was bright red, later becoming dry and cracked. There was also a slight discharge from the eyes. On the twelfth and thirteenth days blisters had appeared on the inside of the right leg, spreading above the knee. The next day the blisters had spread on to the groin, abdomen and chest. The child had been breast fed since birth, and most of the stools passed had been green and loose. The mother was examined, and no signs of infection were found in the breasts or the hands. Her Wassermann reaction was negative.

On admission the infant was small and looked toxæmic, although fairly well nourished. The face and scalp were completely covered by a crusted eruption, and it was with difficulty that the eyelids could be opened. There was slight conjunctivitis. The skin on the thorax and abdomen was raw, with remnants of dead skin scattered over the whole surface. In the left axilla there was a large burst bulla, covering an area of about 3 sq. in. The buttocks were covered with large bullæ of various sizes, which were dirty and oozed much pus.

Treatment and progress.—The areas on the buttocks and axilla were cleaned up with flavine dressings, and on the 20th these areas were dressed with a 1 per cent. solution of silver nitrate in spirit, followed by a 1 per cent. solution of gentian violet in spirit. This was continued twice daily. On the same day sulphapyridine treatment was started, a quarter of a tablet (0.125 g.) being given six-hourly. On this day fresh bullæ appeared, covering the soles of both feet; these were the only fresh lesions to appear. Starch poultices, followed by Lassar's paste, were applied to the face and scalp. Culture of material taken from a bulla did not grow hæmolytic streptococci.

By the 23rd the lesions had so much improved that the application of silver nitrate and gentian violet was discontinued, and on the 25th (after five days) the sulphapyridine was discontinued. At this stage the bullæ had disappeared, and dead skin was being cast off. A few days later the application of Lassar's paste was stopped.

The patient had a slight pyrexia, never above 99.0° F., during the first four days in hospital. The pulse-rate and respiration-rate remained normal. He took his feeds from a bottle well. He was discharged from hospital completely cured after a stay of twenty days.

It is generally agreed that the non-specific type of pemphigus neonatorum is of streptococcal origin, but we failed to isolate this organism in this case. The local and general conditions of the patient on admission to hospital were such that the prognosis was grave in view of our experience of similar cases in the past. Although no conclusion can be derived from the treatment of a single case the satisfactory result tends to show that sulphapyridine may prove to be extremely beneficial in the treatment of this serious disease of infancy.

REFERENCES

Caro, M. R. (1938) *Arch. Derm. Syph.* 37, 196.
Lain, E. S., and Lamb, J. H. (1938) *Ibid*, p. [illegible]

RADON PLANT FOR SCOTLAND.—At a meeting of the Aberdeen University Court it was decided to set up a plant which has been in use at Marischal College for the manufacture of radon at a place which has been selected outside the city. Radon plants, it was said, have been set up in London and Sheffield, and the Aberdeen plant will serve Scotland. On the recommendation of the National Radium Commission all use of radium in [illegible] is to be stopped in that district and all the radium must be [illegible] of the town or buried at least 50 feet below ground. War precautions had also demanded that the radon plant at Marischal College should be closed down. The erection of the new plant, however, will mean a [illegible] of the supply already [illegible] as much as was [illegible] during peace.

OTOSCLEROSIS TREATED WITH SEX HORMONES

By J Bernstien, M B Leeds, F.R C S E., D L O.
AURAL SURGEON AT THE EYE, EAR, AND THROAT INFIRMARY, LIVERPOOL,

AND

Leon Gillis, M B Witwatersrand, M.Ch. Lpool

Although not dangerous to life, otosclerosis is one of the commonest and most serious causes of progressive deafness It often affects young adults at the age when they should become valuable members of society Otosclerosis may have some connexion with the hormones, especially the sex hormones, because it is definitely familial and hereditary; it is much commoner in females than in males, it often begins at puberty; it tends to cease progressing at about the menopause, and it is made worse by each pregnancy

In devising therapy for otosclerosis we bore the following considerations in mind .—

(1) The embryological type of bone is deposited in the stapedial ligament and may even invade the cochlea.

(2) In a normal pregnancy the amount of œstrin in the blood is greatly increased and in a susceptible patient the otosclerosis increases. (We have not investigated the comparative amounts of œstrin in pregnant patients with and without otosclerosis.)

(3) In osteomalacia which may develop in patients without otosclerosis, there is considerable absorption of calcium from the bone. The cause is unknown but must be associated with the production of œstrin, for removal of the ovaries arrests osteomalacia.

(4) Administration of sex hormones causes *dilatation* of the peripheral vessels and an increased circulation of blood. This is more manifest if the heterogenic hormone is administered.

(5) Increased *peripheral circulation might* cause absorption of the embryonic bone present in otosclerosis.

We often did not obtain the classical triad in *otosclerosis, the criteria applied* by us were progressive tinnitus (usually the first symptom) and deafness, an apparently normal drum and middle ear, a negative Rinne; no improvement on inflation, paracusis willisiana, when present (it was often absent), a family history of deafness without syphilis, when present (it was often absent); and the classical flamingo-red blush seen through the posterior inferior quadrant of the drum (more often absent than present)

INVESTIGATION AND RESULTS OF TREATMENT

We investigated and treated uncomplicated cases of otosclerosis The patients were not selected but were accepted for treatment as they presented themselves at the hospital, no distinction being made between mild and severe or early and late cases or between male and female patients

We treated all of them with injections of sex hormones, some receiving homœogenic hormones and others heterogenic In many cases we "rang the changes," without the patient's knowledge, to test the effects of the different hormones The hearing of the patient was tested with the spoken voice, the whispered voice, and the tuning-fork, an audiometer not being available at the beginning of the investigation. Tests with the spoken voice and whispered voice gave sufficient information about improvement or otherwise of the hearing A good idea of the progress can be obtained from the opinions of the patient's friends and relations

The accompanying table shows the results obtained and the following typical case-records illustrate the method and results of treatment.

TREATMENT OF OTOSCLEROSIS WITH SEX HORMONES

—		Improved	Not improved
Males	18	7	11
Females	38	24	14
Total	56	31	25

ILLUSTRATIVE CASE-RECORDS

Case 1.—A man, aged 25, single, seen on April 13, 1938, complained of persistent tinnitus and progressive deafness in the left ear for the past few years. Recently the right ear also became similarly affected His mother had been deaf for many years. On examination the drums appeared to be normal, but Rinne's test was negative. Inflation gave no improvement. Whispered voice: left, not heard; right, 18 in.

The patient was given twelve injections of œstrone 20,000 units at weekly intervals. At the end of this course he said that the tinnitus had almost gone and the hearing had improved Whispered voice: right, 6 in; left, 12 in He was then given three weekly doses of 10 mg. of Perandren, after which he reported that the tinnitus had been worse and that he did not hear so well On testing, however, he heard a whisper just as well as he did before receiving perandren.

He returned to œstrone 20,000 units at weekly intervals and rapidly improved In March, 1939, he said that he had no tinnitus and that his hearing was much better Whispered voice · left, 4 ft.; right, 2 ft. This improvement has been maintained by taking the administration of 1 mg. of stilbœstrol dipropionate by mouth

Case 2.—A young woman, aged 22, single, seen on July 26, 1937, complained of progressive tinnitus and deafness in both ears for the past twelve months. She said that the condition was worse in her right ear. No family history of deafness, no history of aural discharge. Drums appeared normal Rinne negative. No improvement on inflation. Whispered voice; left, 3 in.; right, 4 in.

She was given four weekly injections of œstrone 10,000 units, without any improvement. She was then given twelve weekly injections of perandren 5 mg, and in October, 1938, was greatly improved The tinnitus had gone. Whispered voice: right, 2 ft, left, 4 ft. This improvement continued, and she is *now having perandren 20 mg. every six weeks.*

Case 3.—A girl, aged 18, seen on July 24, 1937, gave a history of tinnitus and progressive deafness for the past ten years She was a typical case of otosclerosis, although the condition appeared to have begun very early. Right ear: whispered voice not heard; spoken voice, 6 in. Left ear. whispered voice not heard; spoken voice, 6 in.

She was given twelve injections of perandren, 10 mg *at weekly intervals, and she improved* considerably. In November, 1938, she said that she only had tinnitus when she was excited, and that her hearing was better. Whispered voice · right, 4 in; left, 12 in Perandren was continued at monthly intervals in doses of 10 mg, and in May, 1939, she had little or no tinnitus and heard better. Whispered voice: right, 6 in.; left, 15 in.

Case 4—A man, aged 42, married, seen on Jan. 3, 1939, said that he had been getting very deaf since 30 years of age (paracusis willisiana) His father and several others in the family had become very deaf (paracusis willisiana) Rinne's test negative This patient could only hear a loud shout near the ear, and we only undertook the case as an experiment

He was given perandren 10 mg weekly for six weeks and was not any better after this course He was then given stilbœstrol 1 mg each morning and twelve weekly injections of Ovocyclin P in 5 mg doses By May, 1939, he could hear a spoken voice (not a shout) right, 6 in , left, 3 in

CASE 5—A married woman, aged 42, seen on May 26, 1937, complained of tinnitus and deafness for some considerable time past Sister deaf Paracusis willisiana Inflation, no improvement Whispered voice right, 1 in , left, 1 in. Diagnosed as otosclerosis

Seven weekly injections of Progynon 10,000 units were given Tinnitus worse No improvement in hearing A change was then made to perandren, and after three weekly injections of 5 mg tinnitus became much less and hearing had improved Perandren was continued in doses of 10 mg in increasing intervals up to six-weekly intervals On May 3, 1939, tinnitus almost gone. Whispered voice right, 15 in , left, 18 in

CASE 6—A married man, seen on May 31, 1938, gave a history of progressive tinnitus and deafness in the right ear since June, 1931 He said that the same condition appeared to be starting in the left ear Rinne positive Wassermann reaction negative Urine showed a faint trace of albumin We felt that this was a case of toxic nerve deafness of unknown cause and decided to try the homœogenic hormone

He had five weekly injections of 5 mg of perandren and at the end of this period complained that his tinnitus and deafness were much worse Whispered voice right, not heard , left, 3 in We decided to try the effect of the female hormone, and he had twelve weekly injections of œstrone 20,000 units At the end of this course he reported great diminution of the tinnitus and improvement in the hearing Whispered voice right, 4 ft , left, 6 ft Injections were given at longer intervals, until with 20,000 units every six weeks he is maintaining improvement

CONCLUSIONS

There is some intimate connexion between the gonadal internal secretions and otosclerosis It may be that in otosclerosis there is an imbalance between male and female hormones Such imbalance can be rectified by administration of the deficient hormone Therefore there is now available a non surgical treatment of otosclerosis

Our investigation has proceeded for a sufficient length of time to show the efficacy or otherwise of the treatment Since the usual course of otosclerosis is progressive deterioration any improvement is a considerable advance

Much more work is necessary to find the best method of using sex hormones in otosclerosis Meanwhile sufficiently good results have been obtained to encourage further investigation—e g whether any particular type sex or age group responds more readily In any case there is now much more hope for the otosclerotic This line of research may also elucidate the ætiology of otosclerosis

We have also administered sex hormones in presbyacusis and have obtained some encouraging results with homœogenic hormones

SUMMARY

Sex hormones have been administered with beneficial results in otosclerosis In most cases the heterogenic hormone was responsible for the improvement

We thank Messrs Schering for providing us with Progynon and Testoviron and Messrs Ciba for supplies of œstrone and Perandren

REDISTRIBUTION OF ABNORMAL FOOT PRESSURE

BY M S HOLMAN, M B Lond

SURGICAL OFFICER IN CHARGE OF THE FOOT CLINIC AT THE BIRMINGHAM GENERAL DISPENSARY

THE modern treatment of most foot deformities aims at the redistribution of foot pressure so that the weight bearing surface will approximate to the normal The conception "foot support" is generally wrong and, as applied to the commercial article inaccurate Metal supports generally lock the spring like action of the medial half of the foot and interfere with normal function, and their success is mainly due to their redistribution of weight pressure under the fore part of the foot In a high proportion of cases the present methods are inadequate In these cases which are either not quite bad enough to require operation, or for various reasons cannot have the necessary surgical treatment or in which operation has failed, I use Formit This is a compound which can be made plastic by heat, moulded and then rapidly vulcanised to form spongy rubber The completed pad can be worn inside or outside the sock

TECHNIQUE

A mould of the foot while bearing weight is taken in plaster of paris The cast is then taken in the same material and thoroughly dried in an oven A piece of chamois leather is pasted on the cast with Bondfix In the meantime a sheet of formit A and one of formit B are softened by heat and mixed together to form a homogeneous pink plastic mass which is then applied to the cast moulded to the required shape, and covered with chamois leather The edges of the chamois leather are well stuck down with bondfix The whole is then returned to the oven, and within 30 min vulcanisation is complete Tape, to which is later sewn an elastic loop, can be placed across the rubber before the chamois leather is applied

Plantar pads are the commonest type and may be (1) complete, extending the full length of the foot, including the borders of the sole , (2) long, extending the full length of the foot and laterally just to the borders of the sole , (3) short, covering the anterior two thirds of the sole of the foot, the edge being just within its margin , or (4) anterior covering the ball of the foot only The surface in contact with the foot accurately fits its contour , the surface in contact with the shoe is flat across the line of the metatarsal heads and outer border and arched at the longitudinal arch , and so the impression of the corrected foot approximates to normal The flat surface is obtained by resting a metal plate on the pad during vulcanisation Tapes if used, pass across the pad just behind the impression of the callosities of the foot and just anterior to the heel

For exostoses the pads should be very small and should fit as a small cap on the projecting bone Tapes and elastic loops may be used Pads may also be made to relieve pressure over scar tissue or to relieve pain in any arthritic joints of the foot Cases which I have treated by this method include the following —

Anterior foot deformities	31
Exostoses	4
Severe hallux valgus	[illegible]
Marked arthritis of first metatarso-tarsal joint	[illegible]

ILLUSTRATIVE CASE-RECORDS

CASE 1.—A woman, aged 33, began to complain five years ago, after rheumatic fever, of painful feet. Two years ago the second metatarsal heads of both feet were removed. Later the third and fourth metatarsal heads of both feet were removed. Two months ago the patient was first seen at the foot clinic; walking was very painful. Long formit pads without tapes and extending almost to the border of the foot were made. There has been much improvement, and the patient can now walk appreciable distances without pain.

CASE 2.—A woman, aged 70, with rigid eversion of the fore part of the foot with severe callosities at pressure points. On standing, she tried to place the fore part of the feet flat, producing apparent genu valgum. Complete formit pads, extended just to include the sole margins, were made. These were also built up along the outer border, making the posture of the feet normal and preventing static genu valgum. The pads now permit the patient to walk in comfort and reduce the number of chiropody treatments required to about a third.

CASE 3.—A man, aged 50, had foot trouble since childhood. For thirty years walking had been difficult and painful. Examination showed both feet to be lacking in muscular tone. There were large callosities under the first, fourth, and fifth metatarsal heads and under the right cuboid and severe clawing of the outer four toes of both feet. Three months ago short formit pads with elastic loops were made and the patient's condition has greatly improved.

CASE 4.—A man, aged 60, had had trouble with his feet all his life. He had rigid double pes cavus, clawing of the outer four toes, and corns under one and five metatarsal heads. Short formit pads with elastic loops were made for him; and this was followed by the usual improvement.

CONCLUSIONS

Most of the painful deformities of the feet can be considerably alleviated by redistribution of pressure. In these severe deformities formit pads give better results than any other non-operative method.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF THERAPEUTICS AND PHARMACOLOGY

AT a meeting of this section on Dec 12, with Sir WILLIAM WILLCOX in the chair, a paper on the use of

Convalescent Serum in the Treatment of Acute Rheumatic Fever

was read by Dr. C. A. GREEN. He said that this work related to a number of young men in a physical training establishment who had shown rheumatic manifestations. A nasopharyngeal infection usually preceded an insidious onset of joint pains and the patient was found to be febrile. The pyrexia rarely lasted longer than a week, and the joint lesions rapidly improved under ordinary treatment. The patients who showed no tendency to develop cardiac lesions and were otherwise healthy young adults went on to convalescence, and some weeks after the temperature had subsided serum was taken from them. This was filtered and preserved and used in the treatment of other cases of acute rheumatism in the same group of individuals with the classical fleeting joint pains and a marked tendency to cardiac involvement. The first effect of serum therapy was to relieve symptoms and cause a return of temperature and pulse-rate to normal. Of 15 cases treated, 9 were considered to have benefited, but not enough serum was available for adequate dosage in every case. Most of the patients received from 10 to 50 c cm. of serum, generally intramuscularly, on three successive days; 2 showed a partial collapse some time after the administration but rapidly responded to appropriate treatment. He emphasised the preliminary nature of these observations, and said that the value of this method could not be estimated until all possible cardiac lesions had been assessed.

Sir WILLIAM WILLCOX said that although it was known that the hæmolytic streptococcus was closely associated with acute rheumatism the other suspected factor had so far proved elusive. The fever and pain could be controlled by salicylates, but no remedy was known which would control the development of cardiac lesions, save prolonged rest and the utmost care to avoid infection.

Dr. W. H. BRADLEY pointed out that cases of rheumatic fever, if untreated, would be found to fall into two groups—a monocyclical group which resolved quite rapidly, and a polycyclical group, in which rises and falls of temperature, the rises being accompanied by rheumatic manifestations, persisted for weeks or months. It was this uncertain factor which made it so difficult to arrive at any conclusion regarding serum therapy.

Dr H. J. PARISH asked whether reactions were obtained with the use of serum from non-rheumatic subjects.—Dr GREEN replied that the effect of normal serum in these cases had not yet been tried.

Prophylactic Vaccination against Whooping-cough

In a short paper Dr I. H. MACLEAN said that at least half of the cases which came to St Mary's Hospital as whooping-cough were not whooping-cough, as ascertained by the cough-plate method of diagnosis, which was the only reliable one. He gave figures relating to about 500 cases immunised at his clinic and coming to him from other sources, together with the number of exposures, and said that so far, in work which went back to 1936, not one failure had been recorded. Owing to the war it had not been possible to keep in touch with the most recent cases, but he believed that the immunisation had also been completely successful in them. His figures did not relate to cases vaccinated during the contact period. Immunisation during the incubation period was not often successful, some 25 per cent of such cases failed to develop a severe cough or vomiting, but nearly all of them would give a positive cough-plate. He believed that there was a stage during the contact period when immunisation did no good and might do a little harm. His cases included only those which had been immunised at least a month before exposure to the disease. He customarily gave three or four doses of 4000 million organisms at weekly or biweekly intervals followed by a stimulating dose of 4000 million a month later. He did not think that the large doses sometimes recommended were necessary for adequate prophylaxis.

Prof ALEXANDER FLEMING said that the prophylaxis of whooping-cough by vaccination was a therapeutic measure comparable with typhoid vaccination, and indeed it was more valuable because whooping-cough was much more widespread in this country.

In reply to a question Dr MACLEAN said that he did not believe that an attack of para pertussis would protect against pertussis. In the pertussis vaccine he used about 10 per cent. of para pertussis strain was now included.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY

AT a meeting of this society on Dec. 14, with Dr ALEXANDER BALDIE in the chair, a paper on

Discipline and Leadership in National Emergency

was read by Dr H. CRICHTON MILLER, who asked his audience to imagine they were on an ocean liner. On leaving port the captain is in supreme command, directing the course of the liner in the safest way possible and efficiently coordinating the activities of the crew. The liner in certain respects resembles a beehive, but with this important difference: in the beehive the several members are instinctually *and biologically adapted to* one function only, whereas on the liner the various members of the crew have been adapted to their respective functions by education, training and selection. In place of a biological urge, the human worker accepts a super-ego impulsion on a rational basis. But suppose that a mutiny breaks out. The single incentive among the mutinous mob is hate or resentment, and it expresses itself in aggression. Rational considerations are eclipsed, super-ego impulsions are discarded, and an instinctual pattern of behaviour dominates. Dr Crichton Miller then contrasted the behaviour of the mutineers with that of a boat-load of sailors from a shipwrecked vessel. Here the dominating emotion is fear. The degree to which discipline is maintained will depend on such factors as the ability of each member to subordinate his instinctual urge to self-preservation in favour of rational and disciplined behaviour, and the presence in command of a leader whose authority is unquestioned and whose seamanship and experience are unchallenged. In the psychology of the mob rational considerations are completely excluded. It is useful to note the way in which the dictators of today have manipulated the populations of their respective countries. Super-ego compulsions are *made to coincide* with instinctual emotions of hate and fear. Thus the German nation is being whipped into a frenzy of rage against England, while it is made to fear "encirclement" as a national catastrophe. Similarly, Mussolini's rise to power was entirely based on the fear of communism. When the Duce had assumed the supreme power in the country, organisation and coördination had to follow, but always on the stock lines of maintaining national aggressivity by promoting *hate* of some enemy and fear of some danger that would result from individualistic action.

Turning to the leader himself Dr Crichton Miller considered how he may *be chosen* and *what may be* his functions. In so far as a leader is chosen by any group of mankind, the choice is usually based on prestige. It is true that many monarchs have no claim to prestige except a genetic one, but kings are more and more ceasing to be leaders. Other sources of prestige are race, caste, physical superiority and age. Perhaps the nation that most shows its psychology in its choice of leaders is the French. Finally, of the leaders who have attained to their positions on purely psychological grounds Gandhi is the most outstanding example, for his prestige is based exclusively on personality. It is particularly noteworthy that the quality of self-control—so important for good leadership—is by no means essential to acceptance as a leader. A mob will follow anyone who satisfies the uncritical demand for someone who appears to know where to go and what to do. But the best leader will be chosen only by a group that is capable of rational discrimination. Of the qualities of the leader, the first and most important is to have vision. The good leader should be able to persuade the intelligent and the open-minded of the wisdom of his proposals. But *this rational approach is not sufficiently* dynamic or spectacular for the man of limited intellect nor for the man under powerful emotional tension. We have only to contemplate the relative performances of Lord Balfour and Mr Lloyd George to realise the truth of *this statement*.

Perhaps the acid test of leadership can be found in the familiar epigram: "The weak have prerogatives; the strong have only responsibilities." Balfour emphasised the responsibilities, Lloyd George stressed the prerogatives, Asquith balanced the two. Abraham Lincoln is perhaps the most outstanding leader in all history for his true interpretation of these words. He used the strength of the North to give the slaves of the South the prerogative of freedom, his prestige was entirely based on personal qualities. What he did was done with rationally controlled emotion, his vision *never failed*.

After replying to various queries, Dr Crichton Miller summed up by saying that he thought the critical point was the recognition of the essential qualities of a good leader. This was largely an intuitive matter and not necessarily the result of education. For example, Sir Oswald Mosley was more acceptable to certain educated groups than he *was to the plain working man*. The latter, even if illiterate, saw more easily through the would-be leader's complete narcissism. Native vision promoted the choice of the good leader. Science alone never revealed the axe-grinder.

The Lancet 100 Years Ago

Dec. 28, 1839, p. 514.

From a leading article

It cannot be denied that many members of the English Universities cherish an esteem for their *alma mater*. The period which they spend there is a pleasant season of life, and, like the spring season of the year, brings with it pleasures of its own, that remain associated with the place; they form many friendships at College; the mind expands; men plunge into the mathematics and the abstract sciences, or hoot the proctors, study [illegible], caricature the tutors, and wander in the groves of mythology, or the streets of Barnwell. Then there are the heavenly pleasures of prayers, besides the porters knocked down, the 39 Articles, the moral discipline, and the citizens insulted; the Fellowships; the fat livings; the honours fairly won; all connected, in some way or other, with the Universities, and which, woven into the web of youth, are remembered, like the morning sky, in the meridian and decline of life. But the student has no agreeable association with the *College of Surgeons*. *The hall of fees*, a bludgeon [illegible], and hair-breadth escapes from the hands of ignorant crack-brained examiners, dwell alone in his memory.

REOPENING OF ROYAL NATIONAL HOSPITAL AT BATH.—The Ministry of Health has agreed with the committee of the Royal National Hospital for Rheumatic Diseases at Bath that its beds may again be occupied with rheumatic cases on the understanding that the hospital can be reconverted at a week's notice for emergency purposes. In the New Year therefore the hospital will revert to its pre-war use. It is not yet known whether a beginning can be made with the new hospital of which the foundation stone was to have been laid by Queen Mary on Sept. 5.

REVIEWS AND NOTICES OF BOOKS

Human Histology

A Guide for Medical Students. By E. R. A. COOPER, M.Sc., M.D., lecturer in histology in the University of Manchester. London: H. K. Lewis and Co. 1939. Pp. 424. 16s.

THERE is a tendency nowadays to link histology with anatomy rather than physiology, and it is therefore coming to be taught from human rather than animal material. At Manchester this association has been in being for twenty years and Dr Cooper in this admirable handbook reveals the advantages and disadvantages of the system. The description of the tissues and organs is well done, for descriptive morphology is difficult to make interesting, and each chapter has a supplement of practical work. The section on cartilage and bone, in which the author had the assistance of Professor Baker, is of especial merit. The weakness of the book is its lack of attention to cytology, and a tendency to teleological thinking. For example, Dr. Cooper says that nothing is known of the origin or function of tissue mast cells, in spite of the great volume of work on the histochemical significance of *metachromasy* and the possible relation between heparin and these cells. He says that nucleated red cells are not found in the circulatory blood after the eighth week of fœtal life, he is apt to confuse the erythroblast and the megaloblast and still puts forward the view that the Flemin's centres in the lymph follicles are zones of active lymphopoiesis. Nevertheless, the book is an admirable introductory guide to human histology for students and reasonable in price, considering the large number of clear and carefully chosen illustrations.

Whitla's Materia Medica and Therapeutics

(13th ed.) By J. H. BURN, M.D., professor of pharmacology in the University of Oxford; and E. R. WITHELL, B.Sc., B.Pharm., Ph.C., A.I.C., head of the department of pharmacy and biology at Birmingham Central Technical College. London: Baillière, Tindall and Cox. 1939. Pp. 536. 12s. 6d.

WHITLA's well-known book has undergone drastic revision. The section on therapeutics, which was previously arranged alphabetically under the names of drugs and contained the kind of information that is imparted to medical students at the bedside, has been replaced by a synopsis of applied pharmacology from Professor Burn's dashing pen, full of the latest information. Hormones now occupy about 30 per cent of the available space. There is an interesting chapter on biological variation, which brings out the fact that all men are not equal and that there are wide normal variations in such measurements as blood-pressure and in the response to drugs. Dr. H. M. Sinclair has written an admirable short summary of modern knowledge on the vitamins from both theoretical and practical points of view. The revision of the section on pharmacy by Mr Withell has been less radical, but much useful new matter has been added, notably in the chapter on sterilisation.

Clinical Pathological Gynecology

By J. THORNWELL WITHERSPOON, M.A. Oxfd, M.D. Johns Hopkins, formerly associate professor of experimental gynecology, Indiana University Medical Center, Indianapolis. London: Henry Kimpton. 1939. Pp. 400. 30s.

THIS branch of pathology is perhaps of greater interest than that of any other part of the body, for the physiological changes that take place in the endometrium and the extraordinary variety of new growths that may arise from the ovary have no parallel elsewhere. Professor Witherspoon does justice to his subject. His book is sufficiently thorough to enable the student to acquire an understanding of gynæcological pathology, and from this, with a little common sense, he will be able to work out the clinical picture and treatment of the condition. At the end of each section the author mentions the treatment indicated together with the prognosis, but he has not tried to include any description of clinical methods of examination and diagnosis, obstetrical injuries or malpositions of the uterus, or operative technique. The illustrations are numerous, most carefully chosen, and beautifully reproduced. A book of this type should be used as an introduction to the study of every branch of medicine.

Disorders of the Blood

(3rd ed.). By LIONEL E. H. WHITBY, M.D. Camb., F.R.C.P., and C. J. C. BRITTON, M.D., D.P.H., assistant pathologists, Bland-Sutton Institute of Pathology, Middlesex Hospital. London: J. and A. Churchill. 1939. Pp. 603. 21s.

THE general scheme in this edition remains unchanged. There is a clear summary of the technique and value of sternal biopsy and a useful account of Quick's method of estimating prothrombin which is becoming increasingly important in recognising vitamin-K deficiency. *Notes on stored blood* for transfusion and the use of heparin as an anticoagulant are also included. The chapter bibliographies contain many fresh references, though several recent fundamental papers are omitted, notably those dealing with pigment metabolism. It is disappointing to find no clear picture of the revolutionary work on the hæmolytic anæmias that has been done by Hielmeyer, Watson and Rimington in the last few years. The story of hæmoglobin metabolism is still far from complete, but there is no reason why the available information should not be given to students. It is also surprising to find no allusion to the work of Robb-Smith and Ross on the obscure diseases classed as "reticuloses" In spite of these criticisms there is no more adequate review of blood diseases in the English language than this.

Annual Review of Biochemistry

Vol VIII. Edited by J. M. LUCK and J. H. C. SMITH, Stanford University. London: H. K. Lewis and Co. 1939. Pp. 676. 22s. 6d.

As we have remarked in noticing previous editions, *this review is almost by definition unreviewable.* The standard of excellence of the articles has been fully maintained, but the selection of any for special comment must depend on the personal interest of the reviewer. The article entitled "X-ray studies of the structure of compounds of biological interest" by W. T. Astbury is important in that it describes the application of X-rays to the study of protein, nucleic acids, polysaccharides and other substances of biological interest. It is clearly written and should be understood even by the non-mathematical. Another interesting study is that on immunochemistry by Chase and Landsteiner. This is a complete account of the year's work, and indicates the great advances that have been made. There are 226 references, which gives an idea of the amount of work that has been done during the year. This is a volume which should be found in every biochemical library.

THE LANCET

LONDON SATURDAY, DECEMBER 30, 1939

MORE SHOCKS

Psychiatrists used to be reproached with their lack of therapeutic zeal it was said they were resigned when they should have been hopeful and enterprising, and torpid when energy was called for Whether the reproach was deserved or not it seems to have stung them into a therapeutic fury Continuous narcosis insulin shock and Cardiazol fits have proved that the psychiatrist is at least as daring as the surgeon nowadays The papers by Kalinowsky in our issue of Dec 9, and by Fleming, Golla and Walter in this record another bold step, first taken by Cerletti and Bini in Italy and now passing into other countries Electrically induced fits are apparently less dangerous and less disagreeable than those due to cardiazol or triazol the patient's memory of the preliminaries "fades as rapidly as a dream" and none of the patients has refused to have further treatment There is no risk to life and less possibility of fractures than with cardiazol convulsions It may be said that these are after all negative considerations, the real justification for the use of such a method must lie in its therapeutic success But there are not yet sufficient data for any conclusion as to this, which is by no means surprising when the controversy about the value of insulin and cardiazol shock is considered, a controversy still quite unsettled in spite of their widespread use Fleming and his collaborators point out that the electrical method has value, even apart from any therapeutic advantages, as a tool for research into epilepsy If a method is harmless and possibly beneficial to patients, and can be turned to the uses of investigation as well, there cannot be objection to its employment with adequate precautions Fleming, Golla and Walter do not set a high standard of adequacy in such precautions for those who may be inclined to follow them The operator, they say, needs only a small amount of training and experience, he can dispense with any knowledge of physics, and the preparation of the patient need take no more than a minute Kalinowsky draws attention to one conceivable danger—cerebral damage—only to dismiss it There are, however, some grounds for reserve on this point Animal experiments cannot be regarded as final and such cases as that of Marchand and Picard[1] indicate that electrical shock which is not severe enough to kill the patient may cause lesions in the brain leading to a slow diffuse sclerosis associated with some mental abnormality The transitory and mild nature of the disturbance produced by the method of Cerletti and Bini renders it unlikely that any single convulsion could be accompanied by lesions of comparable severity, but the frequent repetition of the convulsions, sometimes to the extent of four or five at a single session, raises the same doubts as have often been voiced in regard to cardiazol There is still a chance that the brain has *nemo me impune lacessit* for its motto Such considerations indicate the desirability of caution before electrically induced convulsions are allowed to become the fashionable method of treating severe psychoses But we must not let unconscious associations with what is done periodically in a room at Sing Sing prejudice us against what may well turn out to be a valuable step forward

THE NEED FOR PRACTICAL EUGENICS

Dr Richard Berry[1] has lately drawn attention to the burden placed on the community by the mental defective In an analysis of the nearer blood relatives of the inmates of a hospital for defectives, he finds that, out of 1115 children of 1050 families, only 18 per cent were certainly normal while 35 per cent were certified mental defectives This latter percentage presumably includes the patients who served as the starting point of the investigation, but that is little consolation for other members of the state which has to pay for them Dividing the families into groups according to the certainty of the information available, and according to the mental state of the parents, he finds one group of 202 mentally abnormal men and women produced 143 mental defectives Calculating the cost of upkeep at 80s a week per individual for an average of twenty years, it will be seen that these 200 families provide a direct capital burden on the state of over half a million pounds This is not taking into account the capital cost of the buildings in which the defectives are housed, nor the innumerable other sources of expenditure their families entail—for relief, for physical ill health, for criminality, and so on Against this enormous outlay there is practically nothing on the credit side

The facts are not in dispute There is a large population of certified mental defectives in this country, and a still larger population of borderline cases and of dull and backward men, women and children In point of numbers affected, most of these conditions are said to be caused by hereditary deficiencies, and to be refractory to improved education and other social measures There is no evidence that processes of natural selection operate to diminish the numbers of the mentally defective in successive generations, in fact the evidence we have is to the opposite effect—that they are tending to increase We are now at the beginning of a war in which large numbers of the socially most desirable will very likely be destroyed, or in any case be prevented from adding to the number of their children For a long period, how long we do not know the state has been suffering from an adverse differential fertility For decades the birth-rate has been falling and a declining population is now apparent able We are in the position of a man who has been frittering away his capital in driblets of increasing size, and now, to meet a sudden emergency, has to sell his best securities It is time to consider whether practical eugenic measures have not become a national urgency

---

[1] Encephale 1938 33, 279

[1] Berry R J A [illegible]

These measures need not have the draconian quality of some of the German eugenic laws. They should be positive as well as negative, and there is no need for compulsion to ensure that favourable tendencies are encouraged, unfavourable ones mitigated Among negative measures the free accessibility of the best methods of birth control to all classes is certainly the most important Society cannot but benefit in the long run from family restriction by those of its members who do not wish for, and cannot adequately bring up, more than one or two children The possibility of voluntary sterilisation, as the safest and by far the most convenient method, should not be neglected. But the importance of negative eugenic measures is small beside that of positive ones Research into the reasons which lead parents to limit the number of their children is essential, and it is regrettable that the Population Investigation Committee has had to suspend its activities for the duration of the war War itself will certainly prove a potent cause of family limitation, but we hope a temporary one The economic factors tending to discourage families of more than one or two children are more permanent and more important, and it is here that a well thought out scheme of national economy would do much to reverse the present unfavourable tendencies, both in the gross birth-rate and in the adverse differential fertility. What is needed perhaps most of all is the propagation of an idea—that it is a duty for every man, as an individual, as a representative of his family, as a citizen of his country, and as a member of mankind, to secure the continuance of the happy, the healthy and the intelligent

PNEUMONIA IN INFANCY

SOME say that when a child has an uncomplicated pneumonia all the doctor has to do is to prescribe a suitable sulphonamide preparation, and in children over two years the mortality was always so low that they may be right, though chemotherapy has yet to prove its worth in the pneumonias secondary to measles and influenza But in infants the picture is not so rosy in most hospitals their fatality-rate was between 30 and 40 per cent before specific drugs became available A symposium at the Massachusetts Medical Society last summer[1] affords a valuable summary of the present position.

F C McDONALD dealt first with non-specific measures, those that "conserve the energy of the patient, those that provide ample nutrition and those that seem to raise immunologic resistance to the invading organism" So successful have these methods alone been at the Boston Floating Hospital that the advent of chemotherapy found the mortality in infants under two years reduced from 30 per cent in 1932 to nil in 1938 and 4 per cent for the first four months of 1939 Dr McDONALD's method is to give oxygen and sedatives liberally, and to ensure an adequate intake of fluids and food by efficient nursing A cheap oxygen tent (locally devised) and the use of commercial oxygen have overcome the objection of the expense of lavish oxygen therapy Except where breathing is made difficult by tenacious sputum, a pleural effusion or pharyngeal complications, he gives morphine freely, his dosage being gr $\frac{1}{24}$ at 15 lb, gr $\frac{1}{12}$ at 30 lb. and gr $\frac{1}{6}$ at 75 lb Even with the extra margin of safety provided by an oxygen tent, however, the use of morphine in this way requires great judgment In addition to fluids, he insists on a generous intake of glucose and vitamin concentrates (A, B, C and D) and often gives a blood-transfusion at an early stage Subsequent speakers had the difficult task of justifying specific measures in the light of Dr McDONALD's excellent results without them E C CURNEN discussed the value of specific rabbit serum for infections caused by type 14 pneumococcus, the type generally considered most commonly responsible for pneumonia during infancy and early childhood. CURNEN found this type of pneumococcus in the sputum of 104 out of 120 infants and children with pneumonia Concentrated antipneumococcus type 14 rabbit serum was administered to 34 of these patients, including 22 under two years All these survived, and all but 3 with complications or a mixed infection responded promptly to adequate doses Since there may always be certain patients with pneumonia in whom chemotherapy fails—possibly because of the development of "fastness" on the part of the organism as reported by R W Ross[2] in these columns—the benefits of serum therapy must not be forgotten In this connexion a method of rapid typing of nasal cultures described by F. D. POOLE and M D. FOUSEK[3] should be useful. This is based on the finding that in lobar pneumonia organisms of the same type as in the sputum can be obtained from the middle fossæ of the nose The case for sulphapyridine was presented at Massachusetts by J. A V DAVIES of Harvard There was only 1 death in 79 older children treated with the drug, and this was in a child moribund on admission with a massive empyema Among 71 infants treated there were 5 deaths, none of which could be ascribed solely to the failure of chemotherapy From New York comes a similar report with certain practical suggestions C H SMITH and R L NEMIR[4] advocate giving sulphapyridine, crushed and mixed with cereal, apple sauce or fruit juice, shortly after a meal to minimise the chances of nausea or vomiting They advise a dosage of gr 1½ per pound body weight on the first day, which is then reduced to half on subsequent days for older children though not for infants They urge a shorter course of treatment than is usually given to children. Half their patients only received the drug for two days, and three quarters for not more than three days. With this programme there was only 1 death in 79 patients with lobar pneumonia (an infant with a pyopneumothorax) and only 1 patient developed an empyema. They also found that the physical signs and X-ray shadows began to clear at once after the early crisis provoked by chemotherapy.

---

[1] New Eng J Med Nov. 9, 1939, pp 721, 725 and 734

[2] Lancet, 1939, 1, 1207.

[3] J Amer med Ass Nov 18, 1939, p 1854

[4] Ibid, p 1857

With bronchopneumonia, however, they report failure, presumably because the bacteriology is variable—pneumococci may be absent and a filtrable virus may possibly be the ætiological agent. It is this possibility that must be remembered in treating the pneumonias complicating measles and influenza. Chemotherapy and serum achieve their effect by a specific action on a particular organism, general measures fortify the patient against the disease. Chemotherapy is a valuable weapon which the medical profession is still learning how to use, and it will be a tragedy if well tried general measures are neglected because of the latest achievements of the chemist.

ANNOTATIONS

CAUSE OF DEATH IN DIPHTHERIA

We are slowly progressing towards a more complete understanding of the events leading to death in severe cases of diphtheria. In 1929, two important pieces of evidence were put forward by Brockington[1] and Schwentker[2] to show that the fatal cases can be divided into two classes which are probably quite unrelated. In the first in which the onset is early the patients usually die within the first week, while in the second they do not go downhill until the second week and do *not die* until about the 18th day or even as late as the fourth week. Brockington thought that the early deaths are due to cardiac failure and that the later type bears a close resemblance to Addison's disease. It is unfortunate that this differentiation has not received wider recognition. It is the cause of the delayed or Addisonian form of which the etiology is most in doubt. Is the circulatory failure—the cold extremities, restlessness and vomiting with falling blood-pressure—due to damage to the myocardium or to dilatation of the peripheral vascular system? If to the latter, is the dilatation due to damage to the medulla of the suprarenals with loss of adrenaline production, to damage to the suprarenal cortex with failure of eucortine production and resultant depression of the sympathetic system, or to loss of tone in the peripheral vessels? Plum[3] in Copenhagen has investigated the circulation of 15 children with severe diphtheria over periods up to one month, comparing his findings with those he obtained in preliminary work on metabolism and cardiac output in normal children. He found that the cardiac output and the arteriovenous oxygen difference were unimpaired. In his children there could be no doubt that damage to the myocardium could be excluded as the cause of the condition. He found a general lowering of temperature in the lower extremities which was accompanied by a decreased circulation in the skin capillaries as seen by capillary microscopy of the nail grooves, and he sums up by saying that "the findings suggest that an essential cause of the circulatory impairment in diphtheria is to be looked for in paralysis of the peripheral vascular system, especially the splanchnic blood vessels."

Ashford[4] of the department of physiology in Bristol has studied the suprarenal glands of guinea-pigs rendered deeply toxæmic by injections of diphtheria toxin. He finds that the adrenaline content of the glands differs only slightly from that of normal guinea-pigs. These results leave no doubt that reduction of adrenaline output cannot be looked upon as the cause. On the other hand, Ashford *found changes in the cortex of the suprarenals*—a reduction in lipoid—which corroborated those of Cramer.[5] Thus the clinical condition closely resembling that of Addison's disease is similarly associated with damage to the cortex of the suprarenal, and just as cortical hormone products relieve the symptoms of Addison's disease, so they have been shown[6,7] to lessen the fatality-rate in severe cases of diphtheria, though unfortunately not with absolute uniformity.[8]

It therefore seems reasonably certain that this later fatal form results from paralysis of the peripheral vascular system, possibly due to damage to the cortex of the suprarenals causing depression of the sympathetic nervous system,[9,10] and that neither damage to the medulla with failure of adrenaline production nor damage to the muscle of the heart or peripheral vessels plays any great part in the ætiology.

TUBERCULOSIS AND THE BIRTH-RATE

The slackening in the rate of decline of mortality from phthisis amongst young adults was not a product of the conditions of the last war. In England and Wales it was apparent at about the turn of the century, and according to the detailed study made by Payling Wright and D'Arcy Hart may have been related to a corresponding slackening in the rate of improvement in the standard of living. On the other hand, factors arising out of the last war probably led to the actual rise in mortality amongst young adult females that has attracted so much attention and called forth so many explanations. The latest of the explanations is made by Dr George Wolff[11] of Johns Hopkins University. Since the sharp post-war rise in mortality has now disappeared he naturally finds it difficult to attribute it to such factors as the greater employment of women in industry, lack of proper clothing and feeding, the craze for slimming and the like, since most of these human habits are still with us. But a phenomenon that was nearly world wide in the first few years after the war was the rise in the birth-rate. For instance, in England and Wales it rose from 17·7 per 1000 in 1918 to 25·5 in 1920, in Germany from 13·9 in 1917 to 25·9 in 1920, and in France from 9·[illegible] in 1916 to 21·[illegible] in 1920. It is possible, he suggests, that this transitory rise in the bearing of children added substantially to the strain borne by the young adult females. At ages 15–20 mortality from phthisis [illegible] higher in females than in males and this [illegible] the result of the maternal stresses [illegible]. All the countries which show the greatest decline [illegible] birth-rate tend to show the greatest decline in mortality from tuberculosis, an association to which economic factors are likely to contribute Extra births often lower the family standard of living which tells especially upon the mother. From a national point of view we may regret the decline in the birth-rate to its present low point, but it must be admitted that it has probably been a factor of some importance in the trend of mortality from tuberculosis and from other diseases The present task, Wolff urges, is to reduce the risks run by young women in their fears of generative and maternal activity, "this hardest time in a woman's life," by improvement of their external conditions—another argument to be added to the case for family allowances

---

[1] Brockington, C. F. *Lancet*, 1931 [illegible]

[2] Schwentker, F. F., and Noel, W. W. *Bull. Johns Hopk. Hosp.* 1929, 45, [illegible]

[3] Plum, P. *Acta med. scand.* 1939, 101, 11

[4] Ashford, C. A. *J. Path. Bact.* 1939, [illegible]

[5] Cramer, W. Fever, Heat Regulation [illegible]

[6] [illegible]

[7] [illegible]

[8] [illegible]

[9] [illegible]

[10] [illegible]

[11] Wolff, G. *J. Hyg.* [illegible]

MELANOMA

PIGMENTED moles are far from simple things, and it is only a beginning to say that they are formed by an overgrowth of pigment-containing cells in nests within the epithelium and in larger masses in the dermis An explanation of the non-pigmented polygonal or spheroidal cells, called nævus cells, is the real problem, though there is now strong evidence that they are melanoblasts and capable of extreme metaplasia The diverse appearances of sections of the malignant tumour have also caused much pathological speculation In gross, the picture may be carcinomatous or indistinguishable from a round or spindle-cell sarcoma. Anxious for a unitarian conception of melanoma, pathologists have tried to reconcile all the protean aspects with one or other of the types of new growth and by doing so have only confused the surgeon. It may be said, however, that Ewing's[1] belief in the epithelial character of these tumours is now widely held and a new survey of material from Edinburgh and Cambridge by Dawson and others[2] further confirms his opinion These workers conclude that malignant melanoma in man is a carcinoma—an epithelial melanocarcinoma in the skin and a neuroectodermal carcinoma in the eye On the other hand, there are a few careful descriptions of primary meningeal melanomata and it may be yet too early for a final verdict. To the question "When is a mole not a mole?" Prof Grey Turner[3] answers that unexpected irritability, increase of size, thickening or bleeding are stern warnings of malignant change If there is doubt, the excised tumour should be examined by a competent pathologist whose prime duty it is to say simply whether or not the tumour is malignant If it is malignant the surgeon must face the problem of treatment Grey Turner condemns both meddlesome interference with CO_2 or other irritants and half-hearted surgical measures When first seen the patient's only complaint may be swollen lymph-nodes, but there is often the history of a primary pathognomonic lesion previously obliterated by an innocent house-surgeon. The main point to remember is, as Sampson Handley showed, that for a time at least and in most cases of melanoma, the spread is by the lymphatics It follows that surgical treatment must be systematic. Grey Turner advises a thorough removal of the primary growth with a wide area of unaffected skin, subcutaneous tissue and deep fascia from the growth to the lymphatics The whole of the tissue from the growth and including the highest glands should be removed en bloc Tumours of the abdominal wall demand that both axillary and groin glands be dealt with on the corresponding side while in the limbs amputation is usually necessary. Despite adequate treatment there will remain a high proportion of malignant moles which will kill, since metastases are often present before advice is sought; there is, however, commonly a lull between primary and secondary involvement and it is this lull which may be whittled away in feckless, palliative gestures. Grey Turner quotes five instances in which the radical operation saved life, two of these were described in our columns by Hogarth Pringle.[4] Of Grey Turner's own patients one had a tumour of the inner side of the left thigh and is still well four years after a radical operation The other had a malignant mole of the right hypothenar eminence with secondaries in the glands of the elbow and axilla, and is living a useful life four months after a complete Hogarth Pringle operation These are among the few malignant melanomas that have been successfully treated The common factor in cure was that the surgeons dealt with them as with any tumour spreading by the lymphatic route. Ewing's shrewd opinion that the histological data of melanoma are strongly but not decisively in favour of an epithelial origin while the theoretical considerations are all against it, should be remembered But if the mortality in malignant moles is to be substantially reduced the surgeon must think of them and treat them as cancers.

CHEMOTHERAPY IN MOUTH INFECTIONS

ABUNDANT evidence has been produced in the past two years that the bacteriostatic action of a sulphonamide compound (in safe dosage) is exerted only after it has reached the blood and tissues and only in the presence of living leucocytes As Prof Alexander Fleming pointed out at a meeting of the Royal Society of Medicine, there is no reason why any material benefit should result from the external use of these compounds, for they have a weaker antibacterial action outside the body than the usual antiseptics The "dramatic" results claimed by Sinclair and Barker[5] from the placing of fragmented or powdered sulphanilamide into "dry" tooth sockets can therefore only be ascribed to the ingestion and absorption of the drug into the blood-stream

For this reason, the observations of Fickling and his associates[6] on the excretion of M. & B 693 in the saliva are unlikely to be of therapeutic significance in mouth infections Any effect the sulphonamide has will result not from the minute amounts of it in the saliva but from the presence of the compound in the blood that reaches the living tissues surrounding the focus At the same meeting of the Royal Society of Medicine A. J. Cokkinis read a paper on the effects of sulphonamide compounds in gingivitis and other parodontal infections, based on a research carried out at St Mary's Hospital with the object of discovering if these compounds had any action on *Streptococcus viridans* infections Gingivitis and pyorrhœa were chosen as clinical material because they nearly always yield a rich growth of this organism, often in pure culture After treating over 70 cases, Cokkinis concluded that sulphanilamide and sulphapyridine administered internally in moderate dosage produce a rapid and definite improvement in cases of marginal parodontal infection (gingivitis) when *Strep. viridans* is obtained in pure culture or mixed with hæmolytic streptococci. This improvement amounts to a clinical

---

[1] Ewing, J, Neoplastic Diseases London, 1928

[2] Dawson E K, Innes J R M and Harvey, W F., *Edinb med J* November, 1939, p 669

[3] Transactions of the St John's Hospital Dermatological Society, London, 1938–39, p. 93

[4] *Lancet*, 1937, 1, 508

[5] Sinclair, J. A, and Barker, O C, *Amer J Orthodont* 1938, 24, 266

[6] Fickling, B W, Pincus, P, and Boyd-Cooper, B, *Lancet*, Dec 23, 1939, p 1310.

subserve twilight vision and impairment of this function has been correlated with A-deficiency

The political upheaval of the last few months has made ability to see in the dark of more than academic interest. The blackout is with us for the duration, and already the appalling casualty list which it has brought in its wake is a problem of first-class importance. If a large part of the population were to become night-blind, the result might be serious indeed. There is, therefore, a case for ensuring that a wartime diet, apart from its general sufficiency, should contain an excess of vitamin A. In concluding their study on an earlier page of this issue Harris and Abbasy point out the difficulties of using their dark-adaptation test for A-deficiency as a routine procedure. Indeed, their investigation is principally a contribution to the solution of the question whether the correlation between A-deficiency and night-blindness, satisfactorily established for large groups, can be utilised at all for testing the individual Quite recently Booher and Callison have again produced[1] dysadaptation in a group of volunteers and then used the adaptation test to determine the minimum requirement of vitamin A in the form of carotene The topical interest of all this work centres round the figures, not unsupported by independent evidence, which suggest that a large proportion of the younger members of the population are in normal times defective in dark-adaptation The moral is clearly that "a stitch in time saves nine," and it is important that this state of affairs should at least be prevented from becoming worse The importance of school-children receiving an adequate quantity of milk is beyond dispute, and is referred to by Harris and Abbasy. The excellent propaganda now supplied to health authorities might well include advice on the kind of food to eat in order to ensure "seeing in the dark" This would appeal much more to the imagination of the public than the usual reasons given for eating vitamin-rich foods, and might have more general beneficial results

LONDON VOLUNTARY HOSPITAL FINANCE

THE King's Fund has not found it easy this year to allocate grants fairly to the voluntary hospitals of London in accordance with their needs, owing to what the Duke of Kent described as "the state of dislocation" in their work during the last four months All the hospitals have been affected, but in varying degree, and the fund has wisely decided to make its distribution in two parts On Dec 19 a total sum of £229,000 was distributed as the pre-war fraction of the grant, leaving the balance in a pool to be divided only after the hospital accounts have been made up early next year. Already grants amounting to £73,500 have been made for special purposes, enabling the new Westminster hospital to be opened free of debt, and the Golden Square and Central London throat hospitals to amalgamate to their mutual advantage Nearly £5000 more has been given away this year than last and the further distribution in the spring will mean drawing on reserves—which is perhaps not so serious as it sounds because a large reversionary legacy has just become available One valuable service of the fund came to a sudden end in September because the mechanism for swiftly finding casualty beds in peaceful London would have provided a nucleus for the colossal task of allocating civilian casualties in the event of war The whole staff was in fact called up by the Ministry of Health for its casualty bureau scheme Happily the service was reopened within a fortnight, and on an extended basis to include municipal hospitals. The council of the fund has been notably strengthened by the addition of Sir Frederick Menzies and the appointment to the management committee of Sir Bernard Docker who is now chairman of the British Hospitals Association

TRANSPORT OF BLOOD BY AIR

THE *Times* lately drew attention to the fleet of aircraft that has been fitted up to carry blood for transfusion to army or civilian hospitals from the depôts A wire crate containing ten bottles of blood is the unit for dispatch. Each bottle of blood has attached to it a tin box containing the sterilised equipment necessary for giving the blood. The insulated boxes for aeroplanes hold two crates, and each box, when loaded, weighs approximately 100 lb. The box, loaded with two crates, is kept in the refrigerator until just before dispatch Thereupon an "insert," consisting of a block of ice contained in a tin box, is slipped into the lid of the box This, combined with the Kapok insulating material with which the walls of the box are lined, ensures that the temperature inside the box will not rise more than 5° C in 8 hours Little structural alteration is required in aircraft used for transporting the insulated boxes. The boxes are merely strapped to the fuselage to prevent rolling when in flight Otherwise, the load is limited only by the carrying power of the aeroplane and the manner in which the load can be distributed Aircraft of the type used can carry five boxes of blood, that is, 100 pints

TWO L C C. RETIREMENTS

THE public-health department of the London County Council is losing under the age-limit two well-tried and trusty servants Dr. J A H **BRINCKER**, who has for ten years been one of the Big Three, entered the council's service in 1905 and after varied experience became head in 1927 of the department for controlling communicable diseases A year or two later the newly inaugurated pathological service also came under his control As an acknowledged authority on infectious diseases, Dr Brincker has been president of the epidemiological section R S.M, of the fever hospitals group M O.H's, and of the Medical Officers of Schools Association His work on measles and convalescent treatment is well known, but it should also be recalled that he was an expert chemist, a brilliant teacher of public health, a pioneer in the design of new hospital buildings and an ingenious research worker, for it was he who showed how long a distance water can travel through fissures in chalk

Dr W. B **KNOBEL** entered the council's service from Brompton Hospital and the development of the L C C tuberculosis scheme showed the impress of his diligence and judgment Since 1930 he has supervised supply and equipment for L C C hospitals and lately has been largely occupied in preparing these hospitals to meet national emergency.

Both these officers will retire with the knowledge of work well done and of having secured the confidence of all who worked with them

---

The council of Epsom College will shortly proceed to elect two or more St Anne's scholars Candidates must be fully nine years of age, and must be orphan daughters of medical men who have been in independent practice in England or Wales for not less than five years The value of each scholarship is dependent upon the means of the applicant and the locality and fees of the school selected Forms of application may be had from the secretary, Epsom College, Epsom Surrey, and must be completed and returned by Jan 20

---

[1] *J Nutrit* 1939, 18, 459

SPECIAL ARTICLES

PREVENTION OF VENEREAL DISEASE AFTER EXPOSURE TO INFECTION

By H. D. L. Spence, M.D. Q.U. Ont.

LATE CHIEF ASSISTANT TO THE SKIN DEPARTMENT,
ST. BARTHOLOMEW'S HOSPITAL, LONDON

Advocacy by Metchnikoff and Roux (1906, 1907) of chemical prophylaxis followed closely their discovery of the transmissibility of syphilis to simiae, but the protective value of mercury had already been recognised by operative "rubbers" whose defence may have been partly oblique. After experiments on chimpanzees, macaci, and a human subject a five-minute inunction with 33 per cent. calomel ointment was eventually recommended as an effective antidote if used at the site within eighteen hours after exposure, but subsequent experience of the method and knowledge of the rapidity with which treponemes may reach subjacent lymph spaces reduce the period in which calomel inunction is to be regarded as a reliable procedure to perhaps an hour. So used the ointment protects only the limited area to which it is applied, infection being possible beyond its margins or extragenitally if exposure has been to generalised syphilis. Men find the method unpleasant and there are obvious difficulties in applying it to women, to offset which douching with mercury perchloride or oxycyanide is sometimes added to the female course. In both men and women a preliminary washing of the parts with warm water and soap is advisable and indeed essential, for as Reasoner (1917) confirmed ordinary soap is no mean contraluetic weapon. Properly used the Metchnikoff method is undoubtedly efficient; there have been apparent successes many hours after exposure, but it has also been known to fail when improperly used or where deep needle stabs have been received during surgical operations, these accidents often demanding another form of insulation.

Levaditi found that, besides the metals commonly used in schematic treatment, antisyphilitic properties were possessed by gold, vanadium, antimony, tellurium, platinum, and, in a lesser degree, silver. Gold and bismuth appear to abort syphilis in rabbits, but bismuth has little immediate inhibitory effect in humans and is practically valueless when given orally or percutaneously. In the opinion of Stokes (1931) its use as a prophylactic is more likely to cloak an asymptomatic invasion of the body. Lenz (1923) recommended a 0.3 per cent. perchloride of mercury ointment for local application, favoured also by Neisser, and there have been various modifications and elaborations of the Metchnikoff formula, such as the addition of thymol, camphor or menthol, revision of the vehicle, or the replacement of part of the calomel by other mercurial salts. For the hands many practical men prefer the ung. hydrargyri B.P., its definite colour enabling one to be sure that every part of the surface receives attention.

ARSENICALS AND SYPHILIS

An early suggestion that the arsphenamines might be of use for aborting syphilis is credited to Neisser, but they appear not to have been used for this purpose until 1917 or 1918, a number of articles recommending and opposing the practice appearing in the following year.

Some of the earlier experiments were performed in France, where Lemaitre (1919), among others, was impressed by the results. Fournier and Guenot (1919) administered arsphenamine to forty women not previously diseased, who had been exposed by men with lesions proved infectious by dark-field examination, a total dosage of 1.0–1.2 g. of salvarsan or substitute being fully effective. Five other women similarly placed refused treatment and subsequently developed syphilis. In Germany Taege (1919) advised giving three doses of neoarsphenamine during twenty-four hours, but Riecke (1919) contended that treatment should be withheld until the appearance of a primary lesion. In England Magian (1919) was successful in preventing the development of syphilis by administering 0.6 g. of arsphenamine an hour after experimental human inoculation and reported uniformly satisfactory results with thirty-one other persons whose exposure was reasonably certain. Among other favourable reports, often based on small numbers, may be mentioned those by Lacapère and Laurent (1919), Michel and Goodman (1920), Heden (1922), Hecht (1923), Simon (1921) and Rostenberg (1924).

There are also those who believe with Riecke that treatment should be withheld until the appearance of initial symptoms and an intensive course then given, the fear being expressed that the injections may prevent the local cell reaction and promote a wistful optimism without eliminating the disease. This possibility is emphasised by Harrison (1931), who diagnosed syphilis in patients thought to have been protected. Many others consider that abortive treatment should not be attempted later than three days after exposure, after which it should approximate to the systematic form, as advised by Kolmer (1926). Brown and Pearce (1913) found that rabbits inoculated intratesticularly and scrotally might show spirochaetes in neighbouring glands in forty-eight hours, and later experiments with laboratory animals reduce this period materially; but it is doubtful if there is any close analogy between results with experimentally inoculated animals and the progress of human infection. The occasional failure of prophylaxis is evidently to be allowed for, especially when its start is unduly delayed, but this in no way detracts from its general usefulness.

The basic difficulty in assessing the value of antiluetic measures is the absence of dependable criteria of cure. Every clinician who has to deal with elderly people has met the septuagenarian who undoubtedly acquired syphilis when a youth, took "pills" for two or three months, subsequently married and is now completing a happy and uneventful marital experience surrounded by shoals of grandchildren devoid of stigmata, having achieved either a biologic or a splendidly efficient and enduring static cure. From the days of *sterilisatio magna* other individuals seem to have maintained normal health, so far as syphilis is concerned, after receiving 2 g. or less of original salvarsan, which may or may not mean that the infection was eradicated. Stokes (1931) regards prophylaxis as of great value when restricted to known or presumptive exposures within two or three days, but, in respect of generalised syphilis he expresses what is doubtless the majority view in saying that it is slow rather than wholesale and complete destruction of the spirochaetes which constitutes the best we can hope to attain at present in the treatment of syphilis in man.

Some years ago I urged more frequent use of prophylactic treatment for contacts, for which the field is admittedly limited, and advantage is taken of all opportunities presented [illegible] (Spence 1927). In a little over twenty years I have given prophylactic injections to a hundred people whose exposure to the disease seemed beyond reasonable doubt, and with few exceptions they have remained under observation for at least three months, continuing symptom-free, clinically and serologically Over a score have returned for review years afterwards, among them the man who was the first to receive such treatment from me

In the summer of 1918 a medical officer brought me two young soldiers who within twenty-four hours had had sexual relations with a woman subsequently arrested and found to have open and infectious genital lesions. From a French officer I had learnt of the apparently successful outcome of prophylactic injections of arsphenamine and neoarsphenamine, and with some misgivings I administered to each man intravenously 0 3 g. of neoarsphenamine, followed the next morning by 0 6 g. On the second visit they brought a third soldier exposed to infection by the same harpy a day earlier, and he received one dose of 0 9 g. Three months later these men remained symptomless. In 1929 one of them called on me during a visit to London and underwent serum and fluid tests, which proved negative. He had married in 1920, and two boys born in succeeding years were apparently in normal health, and according to a recent letter they have remained so.

Most of these patients have been seen within a day or two after coition, but two, known to have been in contact with infectious sores through sexual congress, were protected on the fifth day and another on the sixth, the evidence of exposure in the last being less conclusive but sufficiently convincing For some years it was my practice to rely on a single intravenous injection of 0 6 g. of arsphenamine or 0 6–0·9 g of neoarsphenamine, but more recently I have been giving an adult of average weight a total dosage of 1 8 g of neoarsphenamine divided between three sessions, on the first, second, and fourth days. The increase in dosage came about not from any experience of failure with the smaller amount but through uneasiness engendered by reading a series of lugubrious prognostications current at the time, which left me with the feeling that in using the smaller weight I might be sending a boy on a man's errand Blood is withdrawn for Wassermann or Kahn test before any treatment is given and again after seven weeks have elapsed, a negative result being confirmed after three months, although symptoms are reported absent The first and the third tests are the important ones.

Stovarsol and its sodium salt have received some notice as prophylactics, chiefly from French sources, but the pentavalent arsenicals seem better adapted to the chronic disease. Stovarsol is taken by mouth, the prescribed dose being 1 g daily before breakfast, five days' treatment alternating with an equal period of rest I have not tried stovarsol for preventive purposes, it is by no means atoxic and apparently has little to commend it where the arsphenamines are available

GONORRHŒA

There is never a dearth of new remedies for gonorrhœa, recent interest having centred on the sulphonamides About a quarter of all gonorrhœas are untouched by this group, failure being commonest in the acute disease, but, when sulphonamides are used in the declining or chronic stages as an adjunct to local treatment, purulent discharge may be arrested very quickly, the response being best where the constitutional reaction is most severe. Whether the result is cure or asymptomatic gonorrhœa remains to be proved. for relapse is uncomfortably frequent, and it is tolerably clear that the influence of sulphonamides is felt less by the gonococcus than by its "camp followers" Gonorrhœa begins as a pure infection, and internal remedies are of negligible importance in its prevention, local measures, when well applied, being exceedingly efficient and free from the unpleasant and somewhat incalculable systemic effects associated with the newer synthetics.

In this country irrigation with potassium permanganate is often recommended for aborting gonorrhœa, but I have found it disappointing Like many other familiar crystalloids, potassium permanganate is rather irritating and while this is not its only fault it is an important one in prophylaxis The same criticism applies to the commercial creams and ointments which contain a little of something for everything The local agent selected should be bland, non-astringent, a reliable destroyer of gonococci, unaffected or little affected by chlorides, and utilisable in effective concentration This virtually restricts the choice to the dyes and colloids, with some bias in favour of the latter, the mild silver protein (25 per cent) or Neoprotosil (35 per cent) being probably as good as any Procedure should be systematic; my plan with a colloid follows

Treatment in men is begun by requiring the bladder to be emptied to ensure that the urethral surface will then be undisturbed for two or three hours at least The externals are next washed with warm water and soap, followed by 20-vol. peroxide of hydrogen, the chosen antiseptic being finally injected from a graduated all-glass blunt-nosed syringe. At the first session 2 c.cm of the solution should be retained in the urethra for five minutes. About eight hours later 5 c.cm. is used, and after a further interval of sixteen hours 15 c cm. Part of the last injection will enter the posterior urethra and very possibly a few drops of the preceding one, but the first injection is meant for the anterior urethra alone and should be prevented from going back by compression at the penoscrotal junction. To protect the clothing a generous dressing is applied after each treatment, after the parts have been lightly dusted with the stronger compound calomel powder. Since they have already been cleansed with soap and peroxide, a field is left unfavourable for the development of bacteria, including Ducrey's bacillus

Three treatments may be regarded as the minimal number required, if consistently good results are to be attained. If premonitory symptoms of infection are already present, injection A should be used twice on the first day, with an eight-hour interval, and injection B twice on the second, injection C being reserved for the third. fourth, and possibly the fifth or sixth day.

Gonococcal strains seem to differ in virulence, unless the reactivity of the host is the variable factor, and from their manner of development and structure gonococcal infections may be roughly divided into two classes In one the onset is stormy. with early discharge and symptoms of increasing inflammation; in the other the disease develops quietly at first in localised glands, this type often proving more troublesome Colloids have principally a surface effect, and the ability of dyes to penetrate living tissues is nothing remarkable, but three treatments will usually clear up all foci, unless attention has been tardy, when the longer course is better

Some may question the advisability of violating the posterior urethra at all. With a comparatively feeble antiseptic it would undoubtedly be risky; but it must be remembered that the colloid is retained without discomfort, is neither a true nor a false astringent, and is sufficiently active to destroy germs "pushed back" as well as any already there It must not be overlooked that the client may already have been trying some remedy of his own. Suitably adapted, the same course is applicable to the female, mopping with lysol solution preceding the dye or colloid, and special attention being given to the cervix, urethra, and vulvar orifice. As an additional precaution a pessary of iodine vasoliment may be prescribed for insertion at night.

REFERENCES

Brown, W. H., and Pearce, L. (1913) *Amer. J. med. Sci.* 146, 513.
Fournier, A., and Guenot, L. (1919) *Pr. méd.* 27, 551.
Harrison, L. W. (1931) Diagnosis and Treatment of Venereal Diseases, London, p. 449.
Hecht, H. (1923) *Dtsch. med. Wschr.* 49, 667.
Heden, K. (1922) *Acta derm.-ven., Helsingfors*, 3, 660, cited by Kolmer (1926).
Kolmer, J. A. (1926) Chemotherapy and Treatment of Syphilis, Philadelphia, p. 913.
Lacapère, G., and Laurent, C. (1919) *Bull. Méd.* 33, 539.
Lemaitre, J. (1919) Prophylaxie de la Syphilis par le traitement, Lille.
Lenz (1923) *Arch. Derm. Syph.* 7, 419.
Magian, A. C. (1919) Manual of Venereal Diseases, London, p. 100.
Metchnikoff, E., Roux, E. (1906) *Bull. Soc. franç. Proph. san.* 6, 30.
— — (1907) *Ann. Inst. Pasteur*, 21, 753.
Michel, L. L., Goodman, H. (1920) *J. Amer. med. Ass.* 75, 1768.
Reasoner, M. A. (1917) *Ibid*, 68, 973.
Riecke, E. (1919) *Münch. med. Wschr.* 66, 969.
Rostenberg, A. (1924) *J. Amer. med. Ass.* 82, 507.
Simon, D. L. (1924) *Urol. cutan. Rev.* 28, 201.
Spence, H. D. T. (1927) *Lancet*, 2, 179.
Stokes, J. H. (1931) Modern Clinical Syphilology, London, pp. 261, 646.
Taege, K. (1919) *Münch. med. Wschr.* 66, 941.

- -

MEDICINE AND THE LAW

Illness and Wages

LEGAL decisions on the right to wages during sickness were rounded off by the Court of Appeal in Hancock v. B.S.A. Tools Ltd. A workman described as a radial driller was employed on piece work and was paid by the hour. He had worked for the company for eight months and had twice been absent for periods of 20 or 30 days. Relying, it appears, on the not too conclusive judgment of Lord Justice Scott in Marrison v. Bell, he claimed that his right to wages did not cease when he was absent through sickness unless his contract contained an express term to that effect. His employers answered that he was an hourly-rate workman, paid by the custom of the trade for those hours only which he actually worked. The Court of Appeal agreed and the claim failed.

As this controversy is not without its effect on industrial health the decisions may now be briefly summarised. At common law (i.e., apart from statutory complications) a man's illness and inability to work do not suspend his weekly wages while the contract is in force (Cuckson v. Stones 1858, where the contract contained no right to deduct from the weekly sum for *periods of illness and* the court refused to distinguish between periods lasting a day, a week or a month provided that the contract was still in force.) If the workman has signed rules implying that his right to wages is suspended while he is receiving sick benefit from the company's friendly society, the common law rule does not apply; the deduction is justified by the terms which he has accepted (Niblett v. Midland Railway 1907). The receipt of a sum under the Workmen's Compensation Acts will bar the workman's right to full weekly wages (Elliott v. Liggens 1902). But the receipt of sick benefit under the National Health Insurance Acts does not bar the workman's right to full wages while the contract continues because the benefit is not related to or determined by the rate of wages (Marrison v. Bell 1939). In a case where the employers notified their men that sick workers would receive 21 days' half-pay in any one calendar year as an act of grace, a workman who, knowing of this arrangement and accepting half pay accordingly for certain periods of absence due to illness, nevertheless sued for his full pay without deductions, was held bound by the notified limitation (Petrie v. MacFisheries Ltd. 1939).

Hancock's case now shows that the law recognises the fact that casual labourers are in certain well-known instances (such as agriculture or the building trade) engaged on the understanding of "No work, no pay," the work done being the consideration for the money paid. Outside these cases of industrial employment there are, of course, other legal impacts of illness upon the contract itself—as in Poussard v. Spiers (1876), where an opera singer was engaged to perform in a new opera on the four opening nights. She fell ill and the courts held that her illness went to the root of the whole contract; those who engaged her could decline to have someone whose sickness made it impossible for her to do the appointed task properly. So also a lecturer, or an author who undertakes to write a book, can plead illness as a valid legal excuse, though he ought to give notice of his disability as promptly as he reasonably can.

Yellow Fever and Workmen's Compensation

It hardly needed a fresh decision by the House of Lords to declare that, if a workman is exposed by reason of his employment to the risk of infection by disease-bearing bacteria, there is no difficulty in concluding that the resultant disease was due to an accident arising out of his employment. In Dover Navigation Co. v. Craig a ship visited ports and rivers in West Africa; there were many cases of serious illness among the crew, 7 out of 24 seamen died. Craig was one of these. On his mother's application the county court held that his death was due to malaria or yellow fever or perhaps both—probably yellow fever accompanied by malaria. Contaminated food or bad water was not proved to have had any part in causing or accelerating death. The county court judge ruled that the applicant had not proved that the accident arose out of the employment. The Court of Appeal reversed him. If Craig was ordered to go with his ship into a place which the trial judge had found to be a place of peril, a place infected with mosquitoes from which Craig contracted yellow fever and died, then the applicant had discharged the burden of proof and was entitled to the award of compensation. The House of Lords agreed. The fact that the risk was common to all mankind did not prove that the accident did not arise out of the employment. Nor could it be held that death or injury arising from the forces of nature—for instance, earthquake or lightning—was not an accident arising out of the employment merely because the forces of nature had caused it. The applicant in these cases can succeed by showing that the workman was specially exposed to such a force by reason of his employment.

Not every illness or disease contracted by a workman in the course of his employment, said Lord Maugham, is an accident arising out of his employment. Here the ship was one of the most dangerous places in the world at a time when the officers and crew were liable to be bitten by mosquitoes which had already bitten human beings suffering from yellow fever. It was irrelevant, Lord Maugham considered, that the risk was common to all people in the same area. It was sufficient that Craig was specially exposed to that risk by reason of his employment. There was evidence [illegible] Craig's fatal illness with the course of his employment; it was immaterial that other persons [illegible] or otherwise, ran the same risk. What was true of the force of nature was true of [illegible]

. . . . IN ENGLAND—NOW

(FROM OUR PERIPATETIC CORRESPONDENTS)

EVER since the crisis in September last year, when trenches were dug under the shade of the old trees, the clouds of war seem to have hovered over the quiet fields of Lincoln's Inn. At that anxious time certain precautions were put in hand to safeguard the Royal College of Surgeons and its priceless contents. Many of the historic pictures were taken down from the walls and transported to a safe place in the country, and the relics of famous surgeons removed and stored away. During the first half of this year routine work went on as usual, but at the outbreak of war all the college activities had to be suspended The conservator and the pathological curator at once left London to set up an Army blood-transfusion service in the country, taking with them the greater part of the scientific staff. The study of blood-transfusion had been under intensive investigation in the laboratories of the college for some months, and the pathological curator had been largely occupied with the conservator in devising a simple blood-transfusion apparatus suitable for use in war. This apparatus was finally evolved after considerable experiments and is both inexpensive and capable of ready production in large quantities Its design has been adopted by H M. Forces and approved, in a slightly modified form, for civilian use by the Medical Research Council.

In November, 1938, the director general of the Army Medical Service accepted the offer of the research department to form a surgical research unit with the British Expeditionary Force in the event of war, and this unit is now on active service Last January it became obvious to those engaged in the study of blood-transfusion that much experimental work had to be done before stored blood could be transported in large quantities from a central organisation to medical units in the field While this work was being done, research was also being carried on at the Middlesex Hospital on the effect of various anticoagulant fluids on the properties of the blood. A new and simpler apparatus was then gradually evolved and it became possible to manufacture the parts almost entirely by automatic machinery in various factories, and simplicity of design was followed by reduction in the cost

During February, steps were taken to accumulate a supply of blood-grouping serum sufficient to group 250,000 blood-donors. Territorial units in London were visited to obtain volunteers for blood-donors and at the end of a fortnight over 3000 men responded and had been grouped. From this number 180 were selected as being of the proper blood-groups, and from 60 of these a pool of 12 litres of grouping serum became available early in March

The later phases of the development of the Army blood-transfusion and surgical research service, so closely linked with the college, resulted in the formation of two units. one at home, the Army Blood Supply Depot, and one for service with the British Expeditionary Force, the Blood Transfusion and Surgical Research Laboratory The objects of the unit are the supply of blood to the overseas force by the distribution of blood obtained from donors at home to medical units in the field, and also experimental work on such problems as wound infections and shock

In the great building in Lincoln's Inn Fields, before the outbreak of war, gas and splinter-proof shelters had been erected in the basement and most of the valuable Hunterian and other specimens had been transferred to the sub-basement The roof of the sub-basement passages had previously been strengthened to withstand bombs Most of the marble busts of former great surgeons have been removed. although the spirit of John Hunter, symbolised in the famous marble statue by H Weekes. R A, still remains in room 2, in solitary contemplation of the deserted galleries The precious manuscripts and rare early printed books in the library have also been packed and placed in safety, together with the historical relics and most of the rare old instruments from the great collection in the instrument room

The anatomical tables in rooms 1 and 2 have been cleared and stored in the adjacent wall-cases to prevent them from being damaged in any way. From the outside, the college looks as if it was in a state of siege and it is now a local sub-station of the L.C.C. fire service. All the lower windows have been sandbagged, fire engines are parked in the courtyard and a resident fire service contingent is accommodated in the storerooms in the basement. The research laboratories have been closed for the duration of the war Since Nov. 6, however, rooms 1, 2 and 3 (anatomy and pathology) have been opened for study to qualified men and women and registered medical students. The museum and the library are still open from 10 A M. till dusk on weekdays and 10 A M. till midday on Saturdays

* * *

The Middlesex Hospital made its final preparations for war on Sept 1. All the morning improvised ambulances took away our patients until by midday the hospital was an empty echoing shell. We spent the afternoon moving the theatre equipment down to lower and safer floors and plastering the windows with Cellophane. Then a few of us set out for the advanced base hospital forty miles away where we expected to stay for the rest of the war. We arrived there at 11 P M. to find that because of a slip up at headquarters there were no billets going, so we spent the night in a ward next to some dying patients. The main thing that struck us in the next few days was the difference in the attitude of the patients. In London they all make a friend of and take a pride in their particular student. Here they first treated us with a distant respect as doctors, and then, when they found out that we were not yet qualified, with an obvious resentment However, we survived.

The doctors normally on the staff of the hospital rallied round and gave us an excellent series of lectures and invited us to attend their outpatients. There we saw some everyday cases which never seem to get to outpatients in London and are hardly mentioned in the textbooks. Our new chiefs, too, seemed more human than the great pundits in London, and altogether we felt we were seeing another side of medicine which was nearer to what we should have to cope with in general practice. But I suppose we are missing a certain essential part of our training—the specialised and concentrated lectures by experts that are needed for our finals. Many of us also wonder why midwifery and gynæcology are being treated so casually. we now do one month instead of six We have done our best to revive all the old institutions we had in London We now have a medical society which meets once a fortnight, cases are shown, papers read, and we have even been the guests of the local mental hospital at a soirée Everyone enjoys life in the country—for a change at any rate—and as long as we don't think too much about what we may be asked in the M B next year we have no complaints against the decentralisation of medicine

---

WHITAKER'S ALMANACK —A good deal lies between "A.A, The" and "Zyrian" in the index of this year's almanack (London: J Whitaker and Sons. 1939 Pp 1136 7s) The war has been accepted as part of the fabric of our daily lives, and the air-raid warden may calculate blackout time for his particular district from the appropriate tables, while in the post-office section we find directions for sending letters and parcels to H M Forces These must be discouraging times for compilers of books of reference, when the old order is always being so rudely jostled by the new But Whitaker has done his best and though he has not yet inserted F R C O G in the useful list of abbreviations, he has included the names of the two new Finnish cabinets. It will not be his fault if the book is sadly in need of revision before the 1941 edition appears

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half yearly index

FROM A NORTH COUNTRY PRACTITIONER

V

My admiration goes out to those who run efficient nursing homes—efficient, I mean, from the point of view of the patient and the doctor. The patient is always right and often does not know what he wants except to go home cured and the sooner the better. Nurses are hard to come by and when secured are not always satisfactory, cooks and maids are equally essential and just as hard to find. A stream of physicians and surgeons pours in at all hours of the day and each feels neglected if the matron or sister is not waiting to accompany him. Last but by no *means least there are relations and friends to handle*. The vagaries of patients are manifold—those who invariably want bed-pans whilst meals are being served, those who have lost their flowers, those whose beds are too short or too high or too hard, those whose food is not quite what they had at home, those whose aperient is quite different from that of any other patient. There are even those who attempt suicide. All of them when they arrive are afraid, whether they show it or not. A strong healthy patient suffering from hæmorrhoids wrote, "Do you know what it feels like to sit in the condemned cell? I went into the home at 6 P.M. and was given a dose of castor oil. At 7.15 a nurse came and said it was time I was getting into bed. Then I said to myself, 'By God, if they get my trousers I'm done,' so I crept out and came home." It isn't only the patient who is always right but the doctor also. Incidentally, has the moral effect on physicians and surgeons of being God Almighty from the time they leave home in the morning until they return there at night ever been seriously considered? The growing omnipotence of those who get no suitable corrective when they do go home is obvious. Every consultant should go down on his bended knees and pray for a wife who will administer it. Priestley says that a loving wife will do anything for her husband except stop criticising and trying to improve him. When one has seen a theatre or ward staff reduced to tears following an alarming outburst of temper by the surgeon, one begins to feel that self-control as much as asepsis should be amongst the unwritten laws of surgery. Is it surprising therefore that we know of no nursing-homes of which we have not heard bitter complaints from either patients or doctors? Patients feel they are entitled to a very great deal for ten or twelve guineas a week. What matrons of such places feel they are entitled to I do not know. But I doubt if they get it. This makes me wonder whether as a profession we are not relatively overpaid. Where else can a young man of twenty-three or twenty-five be sure of earning £500 a year? Admittedly we work long hours, are always on call and suffer innumerable vexations. (I have just been informed by 'phone that Mrs Jones is alleged to be talking to herself. Inquiry elicited the fact that she has been doing it for a week. A purely rhetorical question as to whether that is a good reason for ringing up at 6 A.M. on Sunday is met with apologies but the desire for my services is in no whit abated.) En masse compared with others I imagine we come out very well financially. Possibly we earn it but I foresee a time when in the general levelling up we shall have to be content with less. This will automatically solve the problem of overcrowding in medical schools. In the process I fear surgeons will come first. Some countries I am told already have a standard tariff for various operations and a low one at that. Foreign doctors are astonished at how little time we put in at our hospitals compared with what they do. Even laymen are beginning to feel that it is inequitable that they should pay the same fee for the removal of a simple interval appendix as for the removal of half a cerebral hemisphere. Admittedly laymen know nothing about it and feel that it is inequitable that they should not only have the misfortune to be ill, but also have to pay for it.

> "God and the doctor we alike adore
> But only when in danger, not before;
> The danger over, both are alike requited,
> God is forgotten and the doctor slighted."

• • •

"No man is a good physician who has never been ill." This does not mean that all physicians who have been ill are good, but it is instructive to have tried it on oneself, instead of on somebody else or the dog. Being a patient alters one's point of view on many things. It is rather like looking through the other end of a telescope. The enlarged view with well-defined lines and colours are no more, instead there is a small image, apparently growing so small that it is ill defined and colourless. That broad view, precise knowledge, cheerful word of hope, tactful admonition, and promise of early relief with the aid of potent drugs, which *one hopes one has carried to many a* bedside cannot be self-applied and no longer exists. In its place there has appeared a limited outlook, almost complete introversion and a selfish self-centred being, utterly occupied with pains and discomforts, without energy or volition and only anxious to be left alone. When this solitude has been achieved it becomes outrageous that there should be nobody there. To-morrow seems an eternity away. 'How long O Lord, how long!" assumes a fresh significance. One looks forward to the visits of one's chosen advisers but when progress is unutterably slow, it is difficult to avoid wondering if they know what they are at, and easy to remember that prognosis is the least satisfactory part of medicine. One finds that certain nurses irritate one quite unreasonably, carefully prepared food tastes all the same, the routine of washing, bedmaking and sweeping out the room is an affront and medicine taking a minor but added imposition. Outside affairs do not appear to percolate into consciousness, and if they happen to do so they do not matter. After such an experience it is easier to understand how ailing mothers pass the years demanding the complete attention of daughters who have never had an opportunity to live. It is easier to understand but no less difficult to forgive the daughters for allowing such a state of affairs to exist. [illegible] expectations may have something to do with it as was the case with a patient with an elderly niece and nephew. To each in turn he [illegible] privately "You will be all right when anything happens to me." He received prolonged and constant attention from them all but left his money elsewhere. It was [illegible] keeping that the same man, found wearing his wife's nightdress a week after her death, explained that she always had better clothes than he had. One realises why it is given to so few to illuminate their own sickroom. From that point of view mine was a complete blackout.

"Complete investigation" assumes a new meaning when one has endured it and "active treatment" is a revelation. X rays and so forth are comparatively innocuous; dental extractions are as unpleasant as previous experience has taught one, and a gastric analysis what one's observation would have led one to anticipate. The villain of the piece is the hollow needle. It seems incredible now that accurate diagnoses were once made and tolerably efficient treatment given without its aid. Needles of all sizes find their way here, there, and everywhere, taking things out and putting things in. Suffice it to say that from the patient's point of view some are worse than others. That is all. The use of this instrument has now become so much a matter of routine that we never even stop to consider its effects. But in future, when eager young house-physicians in the provincial hospital to which I am attached, ache to do lumbar, sternal, ventricular, and other punctures on patients in my beds, they will suffer partial frustration.

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By MEDICUS, M.P.

THE House met on Thursday, Dec. 14, at noon to take an hour's questions, the report on the war and international situation from the Prime Minister, a discussion on milk prices and agricultural policy, and the motion for the Christmas adjournment. The House is adjourned until Jan 16, always of course nowadays with the possibility of recall in case of need And it is a very good thing the House is adjourned, because members need a rest and need, too, the opportunity to get into close touch with their constituents The Prime Minister's statement dealt with Finland, the Russian invasion, and the situation at the League of Nations, which the next day expelled the Soviet Union To this scrupulously fair account of what may eventually prove to be one of the very significant happenings in this continuation of the World War of 1914–18 he added a short appreciation of the King's visit to France and a statement on the taking over of a section of the Maginot line by British troops These British troops are under the command of a senior French formation commander, but the British commander has himself certain French troops under his command. The interrelation between French and British armies and between French and British national policies, as witness the financial agreement, is closer than at any previous time This very close relation extends not only to the metropolitan countries of the two Empires but to all their colonies and dependencies

* * *

At the time of Mr. Chamberlain's statement only the first reports of the action of the cruisers *Ajax*, *Exeter* and *Achilles* against the pocket battleship *Graf Spee* were available The whole House joined in a tribute to this gallant action Since then the whole world has heard the story, one of the greatest in British naval history As if this were not enough, the Prime Minister's statement summarised our relations with the Dominions and India, took note of the proposed early dispatch of troops from Australia and New Zealand for service overseas, and spoke of measures taken in the Dominions and Colonies to increase the output of raw materials such as foodstuffs, copper, tin and rubber.

Speaking of the Home Front, the restrictions and regulations, the blackout, the problems of evacuation and the possibility that we may at any time be subjected to air-raids, Mr Chamberlain ended up by giving a Christmas message for war-time. "Yet for us in this country the message of Christmas is not, in truth, a tragic contrast, but a reminder that we are fighting to defend principles and ideals which for 2,000 years have inspired the minds of men and lifted up their hearts"

* * *

After this world survey, for which the House was full, attention was turned to milk and agricultural policy, and their relation to nutrition, for which the House was very thin. But the announcements made in this latter discussion may well prove to be decisive, for they indicate a change of policy on the Home Front of the greatest importance For some days the House had been uneasily aware that a rise in the price of milk to the consumer was under consideration by the Milk Marketing Board Prices of animal feeding-stuffs have gone up and farmers allege that quality has gone down with something like a 25 per cent. fall in the yield of milk from dairy herds There were rumours, too, of the slaughtering of dairy stock to take advantage of the uncontrolled market for cow beef The importance of milk in the scheme of national nutrition is better understood now than ever before and the prospect of a higher price for milk at a time when butter rationing is to be introduced was realised as a national danger, particularly as far as the nutrition of children is concerned For a rise in price means a fall in consumption, especially in poor families

Mr. Tom Williams, the miner member for the Don Valley who has made himself an authority on agriculture, raised the matter, but Mr. Morrison in reply was able to state that although the Government thought that an increase in price to the farmers was justified they preferred to meet this by a "temporary grant" to the Milk Marketing Board to raise producers' prices by 3*d* a gallon in January and February, and 2½*d*. a gallon in March, above those realised in the corresponding months of 1939 Whether this form of payment is good finance may be questioned, but it does mean that this essential food is being subsidised from the point of view of the consumers—largely children—rather than from the point of view of the producers The payment is described as "temporary," but it is quite clear that any future attempt to raise milk prices to the consumer for the benefit of the producer will be met by a demand to keep the milk price stable. And, indeed, the demand may be made that this new principle should be applied to other staple foods, if there is a danger of the price level soaring to heights which will restrict consumption, as a rise in milk prices would certainly do, to a nutritionally low level

* * *

The logical step with liquid milk production is to make it a national service, and this consumers' subsidy is a step in that direction Another step in this direction, but applying to all foods and indeed all necessities of life, is the proposed adoption of the family allowances principle as advocated by Miss Rathbone and Mr L. S. Amery.

During the milk debate the case for the raising of national nutrition to the optimum level proposed in the report of the technical commission of the League of Nations called "Report on the physiological bases of nutrition" was raised and strongly urged. This report is signed by eminent authorities representing Austria, the United Kingdom (Prof. Cathcart, Prof. Mellanby and Sir John Orr), France, Italy, Scandinavia, the U.S.S.R. and the United States of America.

Present consumption of milk in this country is low in any case, and has recently fallen owing to the dislocation caused by evacuation and the mobilisation of the armed forces. To bring milk consumption up to 1000 grammes daily—nearly 2 pints—would need not only the use of all milk now produced in this country but a greater production still. And this brings the problem up against the question of feeding-stuffs for dairy herds and the prospect of having to change our agricultural policy in this country to do it. Controlled shipping has already caused a restriction in the import of maize and of other animal feeding-stuff, on which it has become the habit of this country to rely for many years past for the larger part of animal feeding. If we are to maintain the level of present animal production, and especially of milk production, this means a radical change in farming methods. As Sir Reginald Dorman-Smith said, we imported last year some 7,500,000 tons of animal feeding-stuffs, and while the Government policy is to allow as much latitude as possible in cropping, "farmers who are primarily concerned, either in milk or livestock, especially in milk, should themselves try to make themselves *more self-sufficient in food for their stock*." The italics are mine, for the announcement deserves emphasis.

Combine this statement with the Government's announced policy of encouraging the growing of food in back gardens and allotments: it means a swing-over towards agricultural self-sufficiency on a nation wide scale. The dairy farmer is in fact asked to grow the barley, oats and horse beans which will replace the formerly imported foodstuffs. The chicken farmer is asked to feed his poultry off his own land as far as possible and the non-chicken farmer to increase his head of stock.

In this campaign the Minister of Agriculture is asking for the ploughing up of 2,000,000 acres for a change in the system of farming and to help with this we are promised "a moderate and controlled" increase of prices. The Minister further promises greater security for the farmer and a rise in wages and greater security for the farm worker. Financial assistance is offered through county agricultural committees to enable derelict or semiderelict land to be cultivated, and details on all these matters will be given to the House after the recess. Finally, the Minister said that when the 2,000,000 acre ploughing scheme was complete we may, "in the event of the war continuing," have to start "another scheme for ploughing up."

• • •

What emerges from this debate and those previous debates in which similar matters have been raised, is that the Government is having more and more to consider civilian food supply and nutrition with just as much care and attention as munitions of war and man power for the fighting services. In the background of our minds is the experience of the first instalment of the war in 1914–18, when there were such grave results of under-feeding and deficient feeding over large areas of Europe and Asia—and we remember the pan epidemic that swept the world in 1918. And because of the realisation by so many millions of people for the first time perhaps, of the importance of production from our own land there will be a different relation between town and country in the future. To which it happens that the experiences of evacuees, so many of whom are remaining in the country, will add a large body of personal experience.

NEW ZEALAND

(FROM OUR OWN CORRESPONDENT)

MATERNITY BENEFITS

AGREEMENT between the New Zealand branch of the B.M.A. and the Minister of Health having been reached on Nov. 3, 1939, the maternity benefit scheme under the Social Security Act is now in operation. This amended scheme dispenses with the necessity for the practitioner entering into a contract with the government. All he has to do now is to fill in a form for each miscarriage or childbirth he attends, forward it to the local M.O.H., and receive payment out of the social security fund. Extra fees are paid for complications and accidents, the help of an anæsthetist or consultant, and mileage. Obstetrical specialists, who must be recognised as such by the Minister, are entitled to charge the patient fees in excess of those provided under Social Security, but no other doctor rendering "usual" maternity services may do so. The fees agreed on are as follows:—

1. "Usual" medical services: Maternity, £5 5s.; miscarriage, £3.
2. Additional: Toxæmia other than eclampsia 10s. per visit with a maximum of £5; eclampsia £5; ante partum hæmorrhage involving surgical intervention or blood transfusion, £1, with refund for donor and grouping tests; surgical induction of labour £2; consultation, £1 1s.; anæsthetist, £1 1s.
3. Mileage: When the distance from the doctor's residence or surgery is between 2 and 4 miles, £1 1s. to cover all visits; when more than 4 miles, 10s. 6d. for each mile or part of mile over 2 to cover all visits, or in other cases 1s. per mile over 2 miles per visit.

All practitioners who ordinarily practise midwifery are considered to be serving under the scheme unless they "contract out." Similarly all patients are considered to be subjects of the scheme unless they signify their intention of paying their own fees.

The scheme is generally approved by both public and doctors, and it is not likely that there will be much contracting out on either side. One wonders whether it would not have been better to have spent some of the Social Security money on helping the growing points of the obstetric art and science. To have established in each or even in one of the remaining three large hospitals in New Zealand (Dunedin being the seat of the medical school) a unit devoted to clinical research into such subjects as sterility, hormone treatment in obstetrics and anæsthesia in childbirth might in the long run do more good than the present bread and butter measures. Such a unit through postgraduate teaching and [illegible] might do much in forestalling disasters and disappointments, and incidentally save its cost many times over through more accurate treatment, at present often blindly applied. But there seemed to be [illegible] to mention these things when the scheme was being fashioned.

LETTERS TO THE EDITOR

NEGATOL

SIR,—Any method which promises to further the quest for the ideal treatment of vaginal discharge is welcome and deserving of clinical trial. A recently introduced product, Negatol, has been employed at the Middlesex Hospital clinic for the past eight months. One hundred and eight cases commenced treatment, of which eighteen defaulted and need not be mentioned further. The remaining ninety were classified into 3 groups: (*a*) cases of trichomonas infection; (*b*) cases of non-specific cervicitis with erosion; (*c*) cases of gonococcal infection with a residual non-specific cervicitis after sulphanilamide treatment. Bacteriological control was carried out by investigation of smears from the cervix and urethra and examination of a fresh specimen of discharge for *Trichomonas vaginalis*. The size and character of the cervical erosions were diagramatically recorded.

The treatment was carried out as follows. The vagina was douched with sodium bicarbonate and swabbed dry. Negatol (100 per cent.) on a wool-coated probe was then introduced into the cervical canal for one minute. All eroded areas were painted with the same strength solution. The upper vagina was then lightly packed with gauze soaked in 5 per cent. negatol. This procedure was repeated three times a week for periods varying from 3 to 6 weeks, and when the patient could not attend a 10 per cent. pessary was substituted for one day's treatment. A thick white film appeared immediately on all areas treated with the 100 per cent. solution and within 24 hours the entire vagina was covered with a similar film which gradually separated in shreds or occasionally in the form of a complete cast of the vaginal cavity. A microscopic section of a cast was seen to consist of the superficial layers of the vaginal epithelium averaging five cell layers in depth. The mucosa after separation of the cast was pink and unbroken and showed no evidence of inflammatory reaction. Soreness was complained of in four cases and in these, classified as failures, the treatment was abandoned. No patient complained of symptoms suggestive of general ill effects due to the possible absorption of negatol. The results in brief were:—

Group (*a*): 17 cases of which 11 are apparently cured. These figures are disappointing when compared with the excellent results obtained by other methods.

Group (*b*): 47 cases of which 45 are symptom free with healed erosions.

Group (*c*): 25 cases of which 20 are seemingly cured.

It is as yet early to draw conclusions, but it appears that negatol is deserving of a more extended trial in cases of non-specific cervicitis with erosion. It is hoped to make a more detailed report on the investigations when a sufficient time has elapsed to justify regarding the cures as permanent.

I am, Sir, yours faithfully,

OSWALD LLOYD

Gynæcological Registrar, The Middlesex Hospital, W 1

SIR,—It may be of interest to bring to notice a new product, Negatol, upon which a clinical trial has been carried out at the L C C (Whitechapel) Clinic on cases suffering from infestation with *Trichomonas vaginalis*. Some of the 50 patients were suffering also from gonorrhœa or its sequelæ, there being 5 with acute and 26 with chronic gonorrhœa. Identification of the parasite, was made in all cases as follows. A bead of pus was removed from the posterior vaginal fornix by means of a sterile platinum loop and was suspended in normal saline on a microscope slide. This suspension was covered by a cover-slip, immediately examined by the darkground method and the characteristic movements of the actively motile organisms observed. Clinically, the majority of the cases showed the characteristic signs of the infestation —vaginal discharge with a varying degree of vaginitis and cervicitis.

Patients were advised to attend daily for treatment, which was carried out in the following manner: the patient being in the lithotomy position, a speculum was inserted and the vagina swabbed out with a cotton-wool swab. A douche of 2½ per cent. negatol was then given. This was followed by thorough painting of the cervical canal and vagina, paying particular attention to the posterior fornix, with 100 per cent. negatol, by means of a cotton-wool applicator. If unable to attend daily, a 10 per cent. negatol pessary was given to the patient, with instructions to insert it as high as possible into the vagina on retiring. As I regard the rectum as a possible source of auto-reinfection, especially during the menstrual period, the patient was instructed to insert into the anus a 20 per cent. negatol suppository each evening during menstruation.

During treatment a thick white membrane forms over the vaginal mucous membrane and this gradually extends over the entire surface, including the cervix. This membrane is shed either gradually or, as occasionally happens, as a complete cast of the vagina. It consists of the superficial layers of the vaginal epithelium. Once separation is complete, the underlying mucosa appears of normal healthy colour and it will be seen that the inflammatory process has subsided to a marked degree.

At each visit a saline suspension was taken from the vagina and examined by the darkground method for the *Trichomonas vaginalis*, in order to control the investigation.

ANALYSIS OF RESULTS

Day on which *Trichomonas* disappeared	No. of cases
1	22 (44%)
2	7 (14%)
3	9 (18%)
4	5 (10%)
5	4 (8%)
6	1 (2%)
7	2 (4%)
Total	50 (100%)

Relapse occurred in 21 cases (42 per cent.). In 13 patients this happened immediately after a menstrual period. It is always difficult to decide whether these relapses are genuine or are in reality reinfections. In some cases where the *Trichomonas vaginalis* reappeared there was no consequent clinical relapse. This suggests that the organism was assuming its well-known saprophytic character.

The striking feature of cases treated by negatol is the rapidity with which the clinical signs and symptoms disappear. This is naturally the most important factor so far as the patient is concerned. No complaints regarding discomfort were made by the patients undergoing the treatment, and the simple method of application makes the method extremely practicable. It is hoped to make a more complete report of the investigation later Meanwhile I should be pleased to hear of other readers' experiences with this product

I am, Sir, yours faithfully

W NEVILLE MASCALL,
Chief Assistant Medical Officer,
L C C (Whitechapel) Clinic.

PARAPLEGIC BERIBERI

SIR,—Dr Bruce Young, in his interesting account of a patient with paraplegic beriberi in THE LANCET of Dec 16, comments on the appearance of the legs, which suggested a link with famine oedema, "a disease regarded by some authorities as a special variety of beriberi and by others as a distinct but allied condition" The observations of Dr Ashley Weech in China and New York show that oedema occurs when the serum albumin is reduced below a critical level the concentrations of globulin and total protein being less important The reduction can result from a diet which contains little protein but the economic situation in this country does not produce examples Dr Bruce Young's patient, however, had subsisted mainly on milk chocolate and grapes for a year with other fruits and uncooked vegetables for the previous four years Half a pound of chocolate and a pound of grapes would contain about 20 g of protein A vigorous adult (which the patient was not) probably needs about 100 g of protein (of which 37 g should be animal protein) a day As has often been said, a diet deficient in one thing is probably deficient in another, and it seems likely that the patient was suffering from nutritional oedema as well as beriberi One would much like to know what the serum albumin figure was

I am, Sir, yours faithfully,

Cuckfield, Sussex   PHILIP EVANS

BURN WARDS

SIR,—I apologise to Miss Gray for stating that burned children are sent from the Glasgow Royal Infirmary for treatment in the Royal Hospital for Sick Children I would be interested to know, however, if there is a follow up of all burning injuries which were not deemed worthy of admission and which were sent home after treatment as outpatients It may happen that every case is not seen by a member of the visiting staff, and that certain cases eventually arrive at other hospitals for further treatment On re-reading my article I cannot see any implication that the general hospitals ignore the urgency of immediate treatment of burns Before the surgeons of the other teaching general hospitals arise in their wrath to smite me may I state now that I know very definitely that this urgency is fully appreciated by them It appears reasonable to assume however, that in a children's hospital there are greater facilities for the treatment of young children and I can state with confidence that this fact has been recognised by the responsible persons in the two general hospitals in question

Statistics are mainly of value to the person who compiles them It is manifestly impossible to compare the results of Miss Gray's large series with our more modest figures but, if the mortality of [illegible] per cent refers to the 270 children of three years and under I salute Miss Gray I appreciate just how much work such excellent results must have demanded from both the visiting and nursing staff

The dyes suggested by Dr Cruickshank have been used in the Royal Hospital for Sick Children but I personally came to the conclusion that an 'adequate' coagulum was not formed with sufficient rapidity to eliminate the risk of secondary shock in extensive injuries in children I admit that blood-stained vomit is not a common occurrence, but we unfortunately still see cases of severe toxaemia, and in these cases blood is not uncommonly present in the vomitus

As sepsis has ceased to exist as a serious complication *of burns in the children's hospital, I do not feel* justified in advocating the sulphonamides as a prophylactic measure until I am assured that their value, when used in this way, more than compensates for the slight risk from their toxic manifestations The cosmetic results obtained from the use of creams in burns of the face are admittedly excellent, but if a large area is damaged it appears to be unnecessary to run the risk of toxaemia, when equally good results may be obtained by coagulation therapy This method of treatment not only disturbs the child less but also simplifies nursing

May I conclude by expressing my admiration for Miss Gray as a surgeon, and my gratitude to her for her patience as a teacher It is occasionally by such controversy that one learns of the good work being done in other hospitals.

I am, Sir, yours faithfully,

Pollokshields Glasgow   WALLACE M DENNISON

THE E M S AND PARLIAMENT

SIR,—I am fully aware of the composition of the Emergency Medical Committee of the B M A later called the Central Medical War Committee, for the names are set out in detail in a parliamentary answer by the Minister of Health (*Hansard* Oct 26) The full list numbers 38, only 5 of these are London consultants, and my point that the principal committee advising the Minister in earlier stages included too few members familiar with consulting practice in London may be conceded The complete reversal of the position of consultants which followed upon the operation of the committee of Oct 15 confirms that contention On this new committee only 1 of the 10 members were representatives of the *old* B M A committee and for the first time a really acceptable proposition was made on its recommendation The answer given to me by the Minister recorded in your last issue shows that by Dec 11, 337 out of some 700 members of honorary staffs of London hospitals had enrolled for part time service on this new offer, whereas prior to the activities of the new committee only 23 members had accepted the various schemes offered by the Minister on Sept 8 and Sept 18 The responsibility which I assigned to the Central Emergency Committee of the B M A for these earlier and essentially abortive schemes is I submit, pace Mr Platt confirmed by the answer given by the Minister of Health to a question on Oct 26, asking to what extent he had found it possible to consult the medical profession in determining the terms and conditions of employment of medical practitioners in the Emergency Medical Service Mr Elliot then told the House that the B M A committee had begun to function as an advisory body in 1937, that the [illegible] made of this committee under its new name the Central Medical War Committee, and that the grading and basis of organisation of the Emergency Medical Service followed the recommendations of this committee and the group officer

I hope I have vindicated the accuracy of my statements [illegible] by Mr Platt

I am, Sir, yours faithfully,

[illegible]   F [illegible]

SYSTOLIC CLICKS WITH PNEUMOTHORAX

SIR,—In your issue of Dec. 9 Dr. Scadding and Dr. Wood described systolic clicks due to left-sided pneumothorax Since the publication of their paper, another case has been seen at Hammersmith Hospital.

A man of 20 was admitted on Dec. 12 with the story that five hours previously, following exertion, he had been seized with sudden pain in the left chest. The pain took about eight minutes to reach its maximum intensity, and radiated to the root of the neck and down the inner side of the left arm to the elbow; it was aggravated by breathing, coughing and movement. He also felt a bubbling sensation in the left chest. On examination the signs were slight. He was not dyspnoeic; the heart and trachea appeared to be slightly displaced to the right; there was some change of percussion note and diminished breath sounds at the left apex; the heart sounds were normal X-rays showed a small left-sided pneumothorax, but the lung edge could not be defined. On the 16th clinical signs of pneumothorax could not be detected, but a loud clicking sound could be heard at the apex synchronous with the heart beat It was best heard with the patient sitting upright or lying on the left side. It occurred late in systole, and was so loud that it was detectable with the unaided ear a foot from the chest wall. The considerable noise in his chest alarmed and distressed the patient. Next day the systolic click had disappeared

It seems probable that this physical sign may often be elicited in the small left-sided pneumothorax, though frequent examination may be necessary to catch the bubble of air when it is of the correct size Its value might be to establish the diagnosis of left-sided pneumothorax when the amount of air in the pleural cavity is so small as to make the results of ordinary clinical and radiological examination difficult to interpret

I am, Sir, yours faithfully,

E P. SHARPEY-SCHAFER.

British Postgraduate Medical School, W.12.

THE WRITING ON THE WALL

SIR,—Apropos of Doctor Don's letter in THE LANCET of Dec. 16, the majority of the effusions which appear on the walls of our public conveniences are not of a high literary order. Nevertheless, the author of the following invocation, which I understand appeared many years ago on the wall of a lavatory at one of our old universities, has some claim both to scholarship and humour.

O Cloacina !* Goddess of this place,
The daily haunt of every child of grace;
Soft yet consistent may my offerings flow,
Not rudely swift, nor yet unduly slow.

* The titulary deity of drains and sewers —C K.M.

I am, Sir, yours faithfully,

Leicester. C. KILLICK MILLARD.

TREATMENT OF COLDS

SIR,—I have found the following local nasal treatment of the common cold most efficacious both as regards hastened resolution and diminished incidence of complications It is based on the Proetz displacement treatment of sinusitis and can be carried out by the patient himself. It is most important that it should be started on the very first day that symptoms are noticed.

The patient lies on his back with the head as far back as possible, a pillow may be put under the shoulders, but there must not be one under the head itself. Warmed ephedrine solution, 1 per cent in normal saline, is then put into each nostril with a dropper until the nasal cavity is full on each side, the patient breathing through the mouth. The solution is kept in situ, with the head held well back, for three minutes. The patient then sits up, allows it to run out, and gently blows his nose

This procedure is carried out morning and night until the cold has resolved

I am, Sir, yours faithfully,

London, W.1. HENRY S. SHARP.

Medical News

University of Cambridge

At recent examinations the following were successful:

FINAL EXAMINATION FOR M B, B.CHIR.

Part I (Surgery, Midwifery and Gynæcology)—G. A Ballance, E. D Barlow, J. J. H. Beattie, M. W. Bird, T. R M Bristow, P P. Brown, B. D. Burns, J. C K Campbell, G. K. F. Cohen, M K Cole, J. G Craddock, R W. Danziger, R. V. Dent, W R B Dickinson, J. A Elliott, M A. Fawkes, J. H. P. Gauvain, M J. Greenberg, T. S S Gregory, M. H. K Haggie, R T Hastings-James, K M Hay, R C Howard, J H. Humphrey, R R. Hunter, T. B Hutton, J D H. Iles, R. C. Jack, J H. Jacobs, D W. M James, E. E Jones, J Joyce, J H. Keesey, T. A Kemp, J. D. Kidd, H P. König, J A. N. Lock, B C. H Luker, G T. B MacKinnell-Childs, W B. D Maile, J. E. M. Melville, R S. Monro, R Morton, T L Oliver, A. Ponder, A. G Porter, W. L. Price, J M Pullan, H. Rabinowitz, J. F Roberts, D. Scott, M C Simpson, J. F. Smith, N. Southwell, G. E Spear, P. N. Stanbury, G E Stein, R E Symes-Thompson, J R Tasker, A C Thackray, C C. Thomas, G. T. G Thomas, P D Trevor Roper, H D S. Vellacott, F A. Whitlock, H. H. Wolff and M. W W. Wood

University of Manchester

At recent examinations the following were successful:

FINAL EXAMINATION FOR M B, CH.B.

Peggy Anderson, A P. Bates, David Bolchower, Ralph Cocker, Barbara H. Fiddian, Percy Haslam, J E Horrocks, Edward Lee, David Livshin, Alan Manch, A S Ogden, J. C. Ramsden, J. C A. Renshaw, G G. Robertson, W. P. Sweetnam and H E Thackray.

Part I—Eva Abrahamson, I C. Campbell, A C C. Davey, Elisabeth J. Davy, Ian Dickson, Walter Dickson, Harry Diggles, J. W. Emerson, G. R Ferguson, L. A. Gifford, B. L. Hoffmann, E W Jones, F. T. Jones, Geoffrey Lancaster, F. R L Makin, Alan Manch, Henry Walmsley, Mary J. Walmsley and Elizabeth C S. Williams.

Royal College of Surgeons of Edinburgh

At a meeting of the college held recently, with Dr. H M. Traquair, the president, in the chair, the following who passed the requisite examinations were admitted to the fellowship:

Yatramulle Mohandirange Edwin Rolin Abeyesundere, L R C P E; Thomas James Brownlee, M B Edin; Hyman Cohen, M B. Edin., Kalipada Das, M B Calcutta; Benoy Kumar Das Gupta, M B. Calcutta, M R C S; Johnstone Dickie, M.B Edin, Alastair Alexander Douglas, M D St And; Mostyn Powell Embrey, M B. Wales, Desiderius Engel, M D. Budapest, L R C P E, Maurice Rossie Ewing, M B. Edin; William Leslie Fulthorpe, M D Durh; Walter Charles Gledhill, M B Sydney; William Gray, M B. Edin; Robert Fritz Herries Hinrichsen, M D-Rio de Janeiro, L R.C P., Henry George E. Wishart Hoare, M R C S, Sa'dallah Khalil, M B Sheff.; Andrew Gilchrist Ross Lowdon, M B Edin.; Rosamund Margaret Irene Mackay, M.B Lond, Aubrey York Mason, M B. Witwatersrand, William Michie, M B. Aberd, Andrew Campbell Miller, M.B Glasg, Navranglal Maganlal Mody, M B Bombay; Geoffrey Henry Moore, M B Sydney; Arthur Naylor, M B Sheff; Padamanur Govinda Rau, M B. Madras, Frederick Howard Robarts, M B Edin, Thomas Frederick Rose, M B Sydney, Francis John Rutter, M.B. Birm.; Charles Gordon Scorer, M R C S; John Francis Sheehan, M.B N U I.; Hector Alban Thomas, M B Wales, Ramsay Nairn Traquair, M B. Edin; and Leslie James Woodland, M B Sydney.

University of London

The William Julius Mickle fellowship for 1940 has been awarded to Mr. F. G. Young, D.Sc., a member of the scientific staff of the Medical Research Council.

At recent examinations the following were successful:

FINAL EXAMINATION FOR B D S

W. G Cross (Guy's) (with honours); W. J Head (Guy's); K. R Titford (Guy's)

Group II—W E Jackson (Guy's)

Society of Apothecaries of London

At recent examinations the following were successful

Surgery.—E J S Barthorpe, E Batley, P S Clarke S J P Bas, and E A Spouse
Medicine.—D S Foster and F G F Skinner
Forensic Medicine.—D S Foster and F G F Skinner
Midwifery.—R S Holtan, C M Isherwood and J Marks

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery and midwifery E. J S Barthorpe, Oxfd and St Mary's F A Spouse, Guy's, and E G F Skinner, Sheff

National University of Ireland

At recent examinations held at University College, Cork, the following were successful —

M CH

W F Whelton

FINAL EXAMINATION FOR THE DEGREES OF M B B CH, B A O

J B Kearney and P J Pugh (with first class honours), Matthew Bennett M A Carroll, [illegible] Coleman J J Hennessy J P Kenefick, Thomas McCracken J B M Kenna Kathleen M McSwiney, Anne M Madden, J J Mo[illegible] [illegible] Murphy W P Navin Mary L Neville, D J O Callaghan, [illegible] O Callaghan, J S O Dwyer, W P O'Neill, D P [illegible] J V O Sullivan, J Pugh, J A. A. Ryan

Part II.—Winifred P Fielding, W [illegible] Lee Thomas Nunan d Luke Tully

D P H

Part I.—D C Lawton

Play Broadcast

The B B C announces that on Jan 2 at 1 50 P M Velvet Sleep," a play based on Dr James Young mpson's discovery of chloroform will be heard

Inspector of Anatomy

Dr Edward Ellice Henderson has been appointed by he Minister of Health and the Secretary of State for Scotland to be inspector of anatomy in England Scotland nd Wales

King's College Hospital

Lady Hambleden presided at the second war time reakfast at the hospital on Dec 14, and later Sir Frank earce formally opened the new dental department ince its foundation in 1923, the department has had the se of one of the hospital wards The removal of the ental department from this ward which had been contemplated some time ago, was hastened at the outbreak of hostilities by the necessity to provide more hospital beds for the treatment of air raid casualties The new dental department occupies the ground floor of the stock exchange wing It will be primarily concerned with conservative treatment, and the main portion of the building will contain thirty five chairs and units of the most modern kind There are also a children's department equipped with nine chairs and units, a lecture theatre, a clinical room for the instruction of students, an X ray room a phantom room, in which students learn the preparation and filling of teeth, a prosthetic room for providing dentures a laboratory, staff rooms and administrative offices The cost of the new department has been met by the trustees of the late Mr. Alexander Bohrmann, who was a near neighbour of the hospital and by a grant from the Dental Board In declaring the department open Sir Frank said he was confident that the combination of medical and dental education under practically one roof, and undertaken in many cases by the same teachers, was beneficial for the future dental surgeons and was no less important for the future physicians and surgeons

Physical Recreation for Youth

At an executive meeting of the Central Council of Recreative Physical Training it was reported that the [illegible] men's technical representatives, stationed in different parts of the country to help with the development of indoor and outdoor physical recreation for youth were making satisfactory progress in spite of difficult conditions The council expressed hopes that all national organisations concerned with physical training will find it possible to continue and even to increase their activities during war time The council is prepared to do its utmost to assist them

Certifying Factory Surgeons' Association of Great Britain and Ireland

Dr Roland Nightingale has been elected president of this association Dr Nightingale is examining surgeon for Stockport

Civil Nursing Reserve

At the meeting of the General Nursing Council on Dec 14 it was announced that eleven nurse officials are to undertake the reorganisation of the Civil Nursing Reserve These nurses will be members of the staff of the Ministry of Health and will be appointed to the eleven districts into which the country is divided in the scheme for the regionalisation of hospitals throughout the country Their tasks will include getting into touch with the hospitals and with the members of the reserve The London area requires special arrangements to fit in with its own special problems A central advisory board is to be appointed and sector matrons with other representatives of the nursing profession will be represented upon it

Mansion into Hospital

Dungavel House near Strathaven home of the Duke of Hamilton has been transformed into an auxiliary hospital for civil and war purposes It will have accommodation for 110 patients and a staff of 25 nurses Several of the wards are furnished with period furniture, and the original atmosphere of the house is also sustained by a display of portraits and other pictures The picture gallery from which the [illegible] valuable paintings have been removed for safe custody has become a ward for 14 beds The house has been converted comparatively easily and should be a useful hospital since the grounds are extensive, electricity is generated on the premises the house has its own fire engine and attendants and there is extensive modern plumbing [illegible] and telephone exchange

Births, Marriages and Deaths

BIRTHS

FERGUSON.—On Dec 16 the wife of Mr J D Ferguson [illegible] Stanmore, Middlesex—a son

FORRESTER.—On Dec 22 at Llan[illegible] the wife of Dr A Stuart Forrester—a daughter

HART.—On Dec 19 at the Royal Bucks Hospital the wife of Dr A F Lloyd Hart—a son

KANAAR.—On Dec 2, at High Salvington Sussex, the wife of Lieutenant A C Kanaar R.A.M.C.—a son

LUDHAM.—On Dec 16 in Edinburgh the wife of Dr Martin Ludham—a daughter

NUTT.—On Dec 22 at Haywards Heath the wife of Lieutenant W S Nutt R.A.M.C.—a son

SHARP.—On Dec 18 the wife of Dr Edward Sharp of Epping Essex—a daughter

STEVENS.—On Dec 17 in Alexandria the wife of Captain C F Stevens, R.A.M.C.—a son

MARRIAGES

ALDIS—JOHNSON.—On Dec 16 at [illegible] [illegible] Stedman Aldis M B to Dorothy Hilda Johnson M R C S

ATKINS—[illegible].—On Dec 20 at Herne Hill Church near Canterbury, Surgeon Lieutenant John [illegible] Atkins [illegible] to Joan Elizabeth Marsh

BROWN—HESLOP.—On Dec 1[illegible] at Caxton Hall Captain Stewart Brown R A M C of Edinburgh to Nancy Heslop of Torquay

INNES—CHRISTOPHER.—On Dec 22 at Stevenage Alexander Innes F R C S [illegible] to Margaret Mary Christopher of Goring-on-Thames

[illegible]—TOWNSEND.—On Dec 2 in Halifax Nova Scotia Captain John Howard [illegible] R A M C to Jean Townsend of [illegible]

SOLOMON—WEISSMANN.—On Dec 22 at [illegible] Maurice [illegible] M R C S [illegible] to Marie Weissmann of [illegible]

[illegible]—HAMILTON.—On Dec 23 in London [illegible] to [illegible] Mary Hamilton

DEATHS

[illegible].—On Dec [illegible] at [illegible] M [illegible] [illegible] aged 72

[illegible].—On Dec [illegible] at [illegible] Herbert [illegible] M B [illegible] aged [illegible]

WRIGHT.—On Dec [illegible], at [illegible] John [illegible] Wright [illegible] aged [illegible]

NOTES, COMMENTS AND ABSTRACTS

FOOTPRINTS AND FEET OF NATIVES OF THE SOLOMON ISLANDS

BY CLIFFORD S. JAMES, M.B. N.Z., D.T.M. & H., F.R.C.S.E.

(From the Melanesian Mission Hospital, Malaita, British Solomon Islands)

THE footprint of a savage in the sand has always been a thing of interest, from our earliest reading up to present-day study of orthopædics Lack of roads in two of the islands where I have worked has made the beach the main highway; and material for the investigation of footprints has been plentiful.

The ones studied in this paper are mostly those of natives of the island of Malaita, a virile, wild, and aggressive type of Melanesian who rarely goes far without his big knife, axe, or club The group is unselected and consists of normal average natives—e.g., visitors, passers-by, convalescents from minor troubles, labourers, and so on The method of taking the prints was to seat the subject on the edge of the table and to paint his soles liberally with black paint Supported by each arm, he stepped cleanly down on to a sheet of paper Standing there, he was told to make as big a print as possible. This he did by bending his knees and giving a jab downwards on to the paper This manœuvre encouraged relaxation of his muscles and voluntary depression of the arches of his feet, if depressible He was lifted back on to the table, and the paint was removed with kerosene

In considering these footprints, I must state first of all that among the population generally there is neither foot-gear nor flat-foot My work in these regions extends over ten years

The footprint of a native is often as characteristic of the man as is his face Not only is his foot, untrammelled by shoes, put down in its own way, but also the depredations of yaws, tropical phagædenic ulcer—both universal—and fungus infections of the sole make it further characteristic by loss of a toe or by contractures and deformities following ulcers

COMPARISON OF EUROPEAN AND NATIVE FOOTPRINTS AND FEET

The *longitudinal arch* exists in both European and native races and is a definite fixed part of the anatomy. Although it can easily be increased by pushing down the anterior part of the foot, it cannot be depressed either voluntarily or passively, with the foot and leg in complete relaxation even under an anæsthetic, by manipulation with the hands

D1, a normal native, selected only because of his willingness to cooperate, was given an anæsthetic. When he was deeply under, a print was taken of his flaccid left foot A similar print was taken of his right foot, pressure being applied with all the force that I could exert, but the arch remained as before (fig. 1, D1 (normal) and N4 (under anæsthesia) and fig. 2).

The tuberosity of the navicular bone varies little, whether the foot is merely resting relaxed on the ground or the whole of the body-weight is pressing on it, the other foot being raised from the ground

This finding is opposed to the view that there is no fixed arch in "primitive races who have never worn boots or shoes," and "the arch of the foot . . . is a contracture deformity almost universally acquired by civilised people as the result of cramping their feet in boots and shoes" (Bankart 1935), and that "it is the fixation of the arch . . . that we regard a unnatural," and "it is the mobility of the arche which is of most importance" (Bankart 1938) Likewise Wiles (1938) expresses the opinion tha the normal foot "can relax into the 'flat' position' On the other hand, it is in agreement with Bruce an Walmsley (1938), who, from examinations of fœta feet, conclude that "the human foot possesses well-defined structural longitudinal arch." The could not agree that the mobility of the foot, a mentioned above, is the all-important factor

Some differences between the feet of Europeans an natives—A native's foot is more massive and broader especially in the male, and lacks the "elegance' (usually pathological) of a European's foot Th sole is well padded, and the skin is thick wher contact is made with the ground (Under the arc the skin is not thickened)

The toes of a native are straight, lie parallel wit the ground, and are spread out so that the inner an outer borders of the feet are two straight line In fact, all the toes lie in lines radiating from th centre of the heel Occasionally the great toe abducted, so that the inner border of the foot concave medially and the other foot has to "ste over" the great toe The differences are evident fig. 3, where the footprint of a normal shod Europea is superimposed upon that of a native

On wet slippery ground, where a European's foo would meet with disaster, a native's foot remain firm The footprint shows deep toe-prints where th toes have been pushed into the ground to get good hold. Even on the beach the toeprint is dee because a native uses his toes in walking more tha a European does The final push-off is from th toes His powers of flexion resist any effort mine to straighten his toes

When the prints are superimposed (fig 3), the oute border of the heel and the prominent base of th fifth metatarsal being taken as a base line, it wi be seen that the anterior part of the native's foot swung inwards—adducted—with a hinge mid-tarsall This is confirmed by measurements :—

(1) A line from the middle point of the hee posteriorly to the front of the print of the ball of th great toe is shorter in a native's foot when compare with a line from the heel to the ball of the little to than is the corresponding line of a European's foo similarly compared.

(2) A line drawn across the foot from the front the ball of the great toe to a similar place in fron of the ball of the little toe, when joining the lin along the lateral border of the foot, makes a smalle angle in a native's foot than in a European's foot.

(3) In the hollow of the footprint a transverse lin drawn behind the ball of the great toe and meetin a line drawn from the heel along the inner border the footprint, makes a smaller angle in a native foot than in a European's foot (This angle can b drawn accurately only in some feet) However, a European's foot this inner border of the print tend to be a wide curve rather than the angle seen so many footprints of natives (see fig. 4)

(4) The increased prominence of the base of th fifth metatarsal (fig. 1) in so many footprints natives is partly due to this medial swing of the for part of the foot.

The most obvious difference between the tw footprints as seen on the beach is that the European foot is always turned out to various degrees whe walking If a European places his footprints alignment with those of a native he feels that he

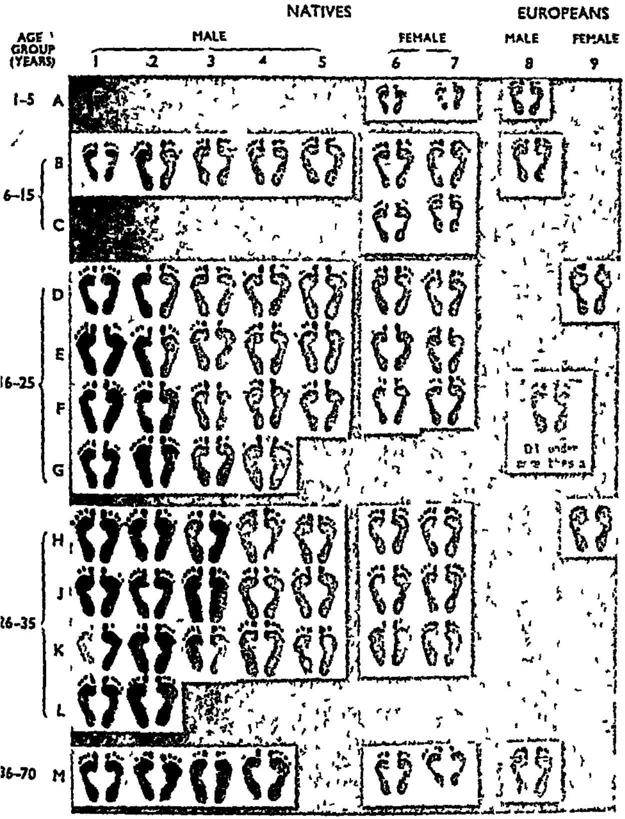


Fig 1—Footprints of 65 natives of the Solomon Islands and 5 Europeans arranged according to sex and age. D1's footprints under anaesthesia are seen on the right. Under full anaesthesia the left footprint was taken by bending the knee and placing the blackened foot on paper. The same was done with the right foot and a strong force was applied in an attempt, *which failed, to obliterate the longitudinal arch*

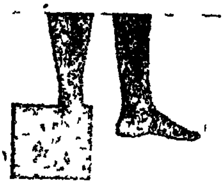


Fig 2—Feet of D1 (*see fig 1*). The arch and general contour of the feet are shown. The strong toes of the right foot are flexed and gripping the table.

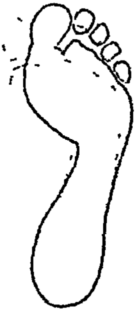


Fig 3—Footprint of a normal shod European (M8 in fig 1) shown by continuous line, superimposed on that of a native (D1 in fig 1) shown by interrupted line. The [illegible] especially of the heel part of the foot and the wide spread of the toes, each lying in the line of its metatarsal bone, are shown in D1

walking very "pigeon toed." A native's foot has its inner border pointing straight ahead with slight variations one way or the other.

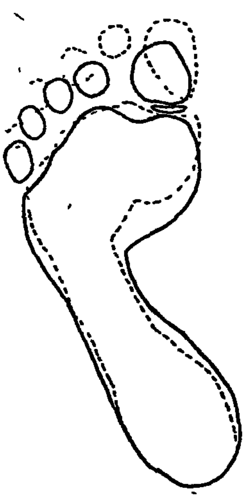
When a European's footprint shows a 'waist,' the outer border of a native's foot often shows a projection. This is at the prominent base of the fifth metatarsal. In a European's foot there is a slight bony arch laterally (Bruce and Walmsley 1938) whereas in a native's foot there is none. This corresponds to the fact that the tuberosity of the navicular on the inner side of the foot is lower by ¼ in. than in a European's foot as measured by Bruce and Walmsley.

Further points in the examination of the foot itself.—The female foot, being less massive than the male, is the more easily examined. Its mobility and pliability are most noticeable; in fact the only fixed thing is the longitudinal arch. All the other joints can be moved separately. The row of the heads of the metatarsals, where the presence of an arch has been disproved by Bruce and Walmsley (1938), can be freely bent transversely, either concavely up or down to an equal degree. This part of the foot in a young woman aged 19 could be increased [illegible] in width merely by gentle digital traction of the heads of the first and fifth metatarsals. Further evidence of this pliability is the way in which the foot spreads out over the ground when the body weight is put on to it. Also though the skin is usually thick, some prints (fig 1, E3 and M[illegible]) show evidence of two lines of flexure in the sole, one behind the metatarsal heads and one in front of the heel. This flexibility makes the foot very [illegible]. Whatever the nature of the ground, the native walks with ease, e.g. a European tread [illegible] a pebble with a diameter a third of the width of the fotreads only on the pebble, whereas a native's foot "flows" all over and round the pebble and adapts itself to it unconsciously and without discomfort, the sole making contact with the ground behind and on the sides, and the toes in front.

At rest—e.g., with the legs hanging over the side of a bed—there is plantar flexion of the foot as a whole, dropping of the anterior part of the foot, with increase of the longitudinal arch, some dorsiflexion of the toes, and inversion of the foot. The normal foot of a European would take up this position were it as flexible as a native's foot.

In fig. 1 there are five footprints in which the black area extends almost to the inner border of the foot—e.g., K6—as though there might be flattening of the arch. This was not so, however, and the tuberosity of the navicular was the same distance from the ground as in other feet with a normal footprint The fullness of the sole was made up of soft tissues, especially muscles As soon as the foot touched the ground, the abductor hallucis muscle came into action and pulled the great toe medially and with it the forepart of the foot, which was more adducted than usual (fig. 5) At rest the great toe was normal in position. The interest of this case lies in the fact that the woman was stout and heavy, and this action of the muscles of the foot in bringing more toes and metatarsals to the help of the first metatarsal and so to support the arch seemed to be compensatory.

6



7

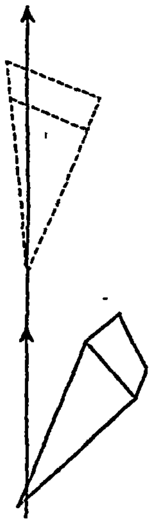
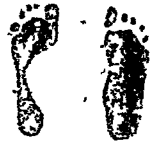


FIG. 6—Footprint (continuous line) of a European (A8 in fig 1), aged 5½, who had never worn shoes, superimposed on that (interrupted line) of a native (B1 in fig 1), aged 7. Except for the rather shorter toes of the European, there is a striking similarity between the two footprints

FIG 7—Triangles of the feet in relation to the direction of travelling: (*a*) of a native (fig 1, D1), (*b*) of a European (fig 1, M8). In the native's foot the toes form a strong additional base to the triangle, all the metatarsals help in propulsion; and the body-weight passes straight over the arch in the line of its strength. In the European's foot (turned out at an angle of 22½°) the toes form a weak and contracted second base, the first metatarsal takes most of the strain of propulsion; and the body-weight passes diagonally over the arch, the strain being on the side of the pillars and tending to push still further out the fore part of the foot and the great toe.

Comparison of an unshod European's foot with that of a native—A European, aged 5½, had never worn foot-gear (except wide sandals for a short time) Fig. 6 shows his footprint superimposed on that of a native aged 7 (B1). The similarity is striking when compared with fig 3, the shod foot of a European The inner border is straight and the fore part of the foot adducted, and in walking the foot turns very slightly in, as does a native's foot Another European, aged 9½, also has been unshod for the most part, though the period in wide shoes or sandals was longer (fig. 1, B8). Unfortunately there is not a footprint similar in size and sex with which to compare his However, the adduction is evident, the inner border is straight, and he walks with the feet turned very slightly out—i e, within the limits of a native. Both have strong active toes with strong flexion The measurements of the inner and outer lines of the foot bear the same ratio to each other as do those of a native's foot. (The foot of B8 is narrower than that of a native, possibly owing to a syndactylism of the second and third toes of each foot)

4



5

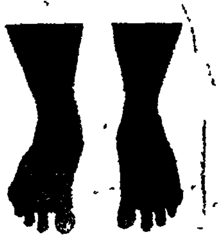


FIG 4—Footprints of a normal and of a flat-foot (Thomson, Miles, and Wilkie, Manual of Surgery)

FIG. 5—Feet of K6, whose footprints (see fig 1) suggest flat-foot The arch is the same height above ground as that of J7 (fig 1) The fullness of the soles is due to soft tissue, especially the abductor hallucis muscle, which pulls the great toe medially. The fore part of each foot is well adducted

COMPARISON OF THE MECHANICS OF EUROPEAN AND NATIVE FEET

The feet of both Europeans and natives possess an arch, and the posterior pillar of each is the same. The anterior pillar, however, varies very greatly. In a native the adduction of the fore part of the foot strengthens the anterior pillar by bringing in more of his metatarsals to take the strain, whereas a European's foot depends almost entirely on the first metatarsal to take the whole weight The active and strong toes of a native also take some of the strain, especially at the moment of pushing off; in fact, the depth of the footprint on the beach, as we have seen, shows that the toes give the final push in walking. The toes of a European, on the contrary, remain more or less passive in the shoe, and barefoot the toeprint is faint A native's toes are in a line each with its metatarsal, and, as the body-weight comes on to the forepart of the foot, each toe lies in the optimal position to help with the load, whereas a European's toes, especially the strong great toe, are pushed away from the line of stress and so can help much less. The contractions of the strong flexor muscles of the toes and of the small muscles of the foot, coming, as they do, at the time of great strain on the arch, act as the string of a bow and keep the arch from spreading. Lambrinudi (1938) emphasises this point. A European lacks this

SUPPLIES OF COD-LIVER OIL

THE price of cod-liver oil has been more than doubled since the war began and the upward tendency is still in evidence One of the reasons for the reduced supplies of oil expressed from the livers of cod fish caught off the north-east coast of England is that most of the trawlers engaged in the fisheries have been commandeered by the Admiralty. In consequence we have become more dependent on imported oil. The main source of imports is Norway, and according to advice from the chief centre of the industry there ample supplies of Norwegian cod-liver oil are available for shipment. It is true that the prices quoted by Norwegian shippers have advanced substantially owing to the depreciation of sterling in terms of Norwegian currency and other causes, but there is still a large margin between the price quoted in Norway and the price which has to be paid when the barrels are landed at British ports. The duty chargeable on imports plays no part in the advance in the London price It is true that there are other charges, but it is questionable whether these are sufficient to justify the remarkably high prices which wholesale drug houses have to pay for this essential commodity. It may be that the big margin is capable of satisfactory explanation, but an inquiry by the Ministry of Health or the Ministry of Supply would do no harm

CHINA'S NEW HIGHWAYS

AN informal collection of letters from a red-cross doctor in China to his friend in this country have been published under this title.[1] They tell us casually of day-to-day difficulties such as impossible gradients, clogged feed-pipes, and bandits which are to be met against a background of cholera and air-raids on the little-known roads through which all China's trade with the west must pass now that Japan has gained control of the sea coast The doctor is in charge of the distribution of medical supplies from the railhead at Yunnan—lately an unimportant townlet, which today shelters nine universities and twenty-two large banks, and where three further railways are being built in haste. In China, petrol is scarce and dear (sometimes 8*s*. a gallon), and some of the medical supplies are carried in ambulance lorries specially designed to run on anthracite or charcoal The motto of the doctor's fleet is "the slowest driving but the fastest transportation," and he finds time to "pep up the health stations and quarantine stations" en route. Some of the earlier letters describe a pleasant trip along the new Burma-Yunnan road already described in our columns (July 8, 1939 p 108), which was only slightly marred by an accident to the lorry which carried the doctor's cherished bicycle. "A bishop was driving it, and that is not ideal." The doctor was impressed by the spirit of enterprise which built the road. "It was nearly all done by farmers who were assigned certain bits to do; certain sections of mountain to be cut out were appointed to certain villages and districts" In this way 600 miles were built in nine months. Eleven photographs help us to share his admiration.

A WEARSIDE SURGEON

THOSE in search of an antidote to blackout boredom might do worse than turn to an unpretentious little volume of reminiscences written by a general-practitioner-surgeon of the old school. ("Sidelights on the Life of a Wearside Surgeon." By William Robinson. Gateshead-on-Tyne: Northumberland Press Limited 1939 Pp 153. 5*s*) William Robinson was born at Stanhope, Weardale, where he practised for many years. As a young man in country practice he contrived to prepare himself for, and to pass, the English F.R.C S examination, no mean feat Later he moved to Sunderland and became first physician and then surgeon to the infirmary there. Many years of sound and thorough work followed, and 1934 the University of Durham conferred on him t honorary degree of doctor of surgery. After 57 yea of practice he is still active and able to enjoy lif In this record of quiet and solid endeavour enliven with numerous anecdotes about colleagues a patients, their foibles, follies and infinite variety, I Robinson does not hesitate to poke fun at hum vanity and pomposity, but his comments are sing larly free from malice. His excellent little book mig have been even better had it included an occasion joke against himself.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK END DEC 9, 1939

Notifications—The following cases of infecti disease were notified during the week: Smallpox, scarlet fever, 1233; whooping-cough, 1189; di theria, 994; enteric fever, 29; measles, 22 pneumonia (primary or influenzal), 440; puerpe pyrexia, 130; cerebrospinal fever, 27, poliomyeli 4; polio-encephalitis, 2; encephalitis lethargica, dysentery, 50; ophthalmia neonatorum, 86, No c of cholera, plague or typhus fever was notified dur the week

Deaths—In 126 great towns, including Lond there were no deaths from smallpox or meas 1 (0) from enteric fever, 2 (0) from scarlet fever, 2 from whooping-cough, 26 (3) from diphtheria, 29 from diarrhœa and enteritis under 2 years, and 23 from influenza. The figures in parentheses are th for London itself.

Brighton reported the only death from typhoid. Fatal c of diphtheria were scattered over 19 great towns, Liver reporting 4 deaths, South Shields and Plymouth each 2. mingham had 6 deaths from diarrhœa, Manchester 4.

Vacancies

Barnsley Beckett Hosp—H P, £150

Birmingham, Romsley Hill Sanatorium—Res asst M O, rate of £240

Guildford, Royal Surrey County Hosp—H P and cas O, H S, each £150

Halifax Royal Infirmary—First H S, at rate of £200

Hampstead General Hosp, Hampstead, N W 3—Res cas for out-patient dept, at rate of £100

Hospital for Consumption and Diseases of the Chest, S.W H P, £50

King Edward Memorial Hosp, Mattock Lane, Ealing, W.1 Res M O, at rate of £275

Leeds Jewish Hosp—R M O, £200

Lincoln County Hosp—Jun H S, at rate of £150

Liverpool, Mill Road Infirmary—Sen res asst M O, £350.

Manchester, Baguley Sanatorium—Dep. med supt, £500

Manchester, Booth Hall Hospital for Children—R S O, £40

Mildmay Mission Hosp, Austin Street, Bethnal Green, E Asst cas O, at rate of £140

Reading, Royal Berkshire Hosp—Res H S's, each at rate of £1

Rochdale County Borough—Jun res M O for Birch Hill Ho at rate of £225

Royal Free Hosp, Gray's Inn Road, W C 1—Hon asst surge to orthopædic dept, hon asst surgeon to ophth dep two res cas O's, each at rate of £150, also dist obst asst, at rate of £100

Staffordshire County Council—Asst M O for maternity a child welfare, £600

Stockport County Borough—Deputy M O H, £750

Taunton, Taunton and Somerset Hosp—H P and H S, £125

Worcester County and City Mental Hosp, Powick—Asst £350 Also locum tenens M O, £7 7*s* per week

The Chief Inspector of Factories announces a vacancy for examining surgeon at Lincoln.

Appointments

Examining Surgeons under the Factories Act, 1937 STEWART (Littlehampton district Sussex)

SMITH, N THOMSON, B Sc, L D S, school dental surgeon to Kent education committee.

---

[1] Obtainable from the secretary of the British Fund for Relief of Distress in China, 108, Barton Road, Cambridge. Pp 27. 6*d*.

Dr. Robert Field Library